anticipation

CHRISTIAN SOCIAL THOUGHT IN FUTURE PERSPECTIVE

No. 11 July, 1972

THE CHURCHES AT STOCKHOLM

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These papers are circulated for the information of participants in the ecumenical enquiry on "The Future of Man and Society in a World of Science-Based Technology". Comments are welcome.

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Note:

The United Nations Conference on the Human Environment at Stockholm, June 5-16, 1972, attracted the interest of Christians as have few other U.N. meetings in recent years. There was at Stockholm a strong group of accredited observers from ecumenical bodies like the World Council of Churches, the YWCA, the YMCA and the Lutheran World Federation. The Roman Catholic Church was represented by a large delegation and a Religious Task Force on Ecology, from the U.S.A. was also actively involved. An ecumenical service in the Cathedral of Stockholm on Sunday evening before the opening of the Conference was attended by over one thousand persons.

More important in terms of the effective Christian witness was the leadership of Christian lay persons like Mr. Maurice Strong, the Secretary-General of the Conference, Miss Barbara Ward (Lady Jackson) and Dr. Margaret Mead, Christian thinkers who have been active in many ecumenical enterprises in recent years.

This Christian involvement is not surprising. The ecological problem poses fundamental theological issues. What ethical concepts can guide us in the present ecological struggle? What is the relation between the concern for ecology and the concern for social justice? But while the interest of Christians has been awakened it is still generally expressed in a somewhat intuitive way - few churches are yet prepared, theologically or intellectually, to face the enormous challenge which it poses to traditional Christian understanding of man, society and history. A secular conference like Stockholm was also baffled and overwhelmed by the scope of these spiritual questions, and dealt with them only in very general terms. Stockholm called attention to the underlying spiritual nature of the problem but was unable to speak to it. Clearly the churches and Christian groups have an enormous contribution to make at this point. There will be further ecumenical explorations on these issues at a World Council Consultation in Cardiff (Wales), in September, and in the publication of an ecumenical study on the Christian understanding of the human and the natural to be available in December, 1972.

To help stimulate interest in this discussion of the problem we are publishing in this issue of Anticipation,

- an evaluation of the Stockholm Conference by Paul Abrecht, leader of the World Council group of observers,

- the presentations to the Ecumenical Service in the Stockholm Cathedral by Dr. Eugene Carson Blake, General Secretary of the W.C.C.; Mr. Maurice Strong, Secretary-General of the U.N. Conference on the Human Environment; Dr. Letitia Obeng, Director of the Institute of Aquatic Biology of Ghana and a member of the W.C.C. group of observers; and Prof. André Dumas, of the Faculty of Theology in Paris,

- a statement by the World Council of Churches to the U.N. Conference on the Human Environment by Dr. Elfan Rees of the Commission of the Churches on International Affairs,

- an address "Only One Earth" by Barbara Ward,

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I

The Stockholm Conference on the Human Environment - An Evaluation

Paul Abrecht

The Stockholm Conference on the Human Environment was a new kind of United Nations meeting, linking political negotiations with scientific debate, world-wide awareness-building and a search for environmental cures. The theme required such an experiment. The ecological implications of modern industrial society are still a mystery to most laymen, and the Conference needed the wisdom which could come only from a great range of opinion not ordinarily represented in the traditional U.N. meeting. That the experiment was so largely successful was due very considerably to the resourcefulness and energy of the Secretary-General of the Conference, Mr. Maurice Strong, a Christian layman from Canada who has participated in recent ecumenical discussions on world economic development. In barely one and a half years he succeeded in preparing for the Conference, an outstanding achievement considering the difficulties involved.

The environment field has been the speciality of innumerable scientific groups, as well as supporters of various panaceas, many of whom were exceedingly active at Stockholm. To reconcile these different elements was not easy. Moreover the enthusiasm of the U.N. Assembly for the Conference wavered at various moments during the preparatory period, and the countries of the Third World were in the early stages fairly hostile towards the whole idea. That the Conference was able to focus world attention on this theme, that the many different interpretations and proposed solutions were heard, and that agreement was reached on the substance of an exceedingly comprehensive action programme is undoubtedly due to the skill and determination of the leadership and the cooperation of the Swedish Government in making possible this kind of open debate and discussion. The organizers of the Conference were also aided by the publication during 1971 and 1972 of a series of reports (*) on the growing threat to mankind from the misuse of technology, the pollution of the environment, and the exhaustion of the earth's resources. These awakened a public interest greater than anyone had foreseen and no doubt encouraged the Conference to bolder action than had seemed possible a year before.

The Stockholm "Scene"

The task of the more than 1200 official delegates from 114 countries participating in the official Conference at Stockholm was to reach agreement on a Declaration of Principles, an action plan, and a proposal for a permanent secretariat and fund for the environment. However the Stockholm scene involved several thousand additional "participants" ranging from the accredited non-governmental observers (about 550), press (1400), and official guests to many hundreds of people who had come to Sweden out of personal interest to follow the Conference proceedings or to take part in the numerous unofficial meetings which surrounded it.

(*) Science, Growth and Society, OECD Report, 1971.

"Blueprint for Survival", Statement of a group of British Scientists, The Ecologist, January 14, 1972.

The Limits to Growth, by Meadows, Randers and others. USA, 1972.

The largest and most elaborate of these was the Environmental Forum, arranged by the Swedish Government in cooperation with the U.N. Secretariat, to encourage expression of a wide range of views on environmental issues. Original plans called for a Forum programme based on contributions from a large number of scientific and action groups. These plans collapsed, and the Forum became instead a "happening" in which programmes were arranged, inserted, withdrawn, modified or enlarged on an almost day to day basis. Drawing upon the great plethora of experts available and importing additional leaders and speakers, the Forum provided an opportunity for youth, younger Third World scientists and environmental protection groups to express their views. The programmes were chaotically presented, extremely uneven in quality, often biased in presentation, but not without a certain fascination. Instead of being dominated by governments, business, research institutes and scientific organizations, etc. the Forum was effectively controlled by youth and various crusading social and ecological organizations. It was saved from paralyzing conflict and confusion by the intervention of a few old "pros" like Margaret Mead, who helped to prevent takeovers by one group or another.

In anticipation of the too "official" character of the Forum as originally planned, various militant ecological groups had organized parallel conferences some of them very elaborate, like that of Dai Dong (the environmental wing of the International Fellowship of Reconciliation) which convened its own meetings before, during and after the Conference. Another series of meetings was organized by the International Institute for Environmental Affairs, in cooperation with the Population Institute (USA), which presented a number of Distinguished Lectures, including Barbara Ward, René Dubos, Thor Heyderdahl and Gunnar Myrdal.

Such groups were often effective in getting the attention of the communications media and, directly or indirectly, in putting pressure on the official conference. Some were especially useful in urging more consideration of the concerns of the Third World and the relation of the environmental questions to social justice. People flowed from one meeting to another. The Conference leadership was adroit in maintaining links with leaders of these different movements and meetings and in being open to their criticisms. The impact of some of these unofficial meetings was weakened by lack of preparation, by sectarian disunity, or by the repetition of certain themes and the tendency towards ideological oversimplification in their presentations But through the witness of these extra-curricular discussions and their citizen action-type programmes, Stockholm avoided the familiar image of a dull and technical U.N. meeting plodding through its agenda, and became instead a living event which reflected in a memorable and colourful way the concerns of many people. It is interesting to contemplate what would happen to many other U.N. conferences (e.g. the annual meetings of the ILO, the WHO, FAO, etc. or the U.N. General Assembly itself) if they were surrounded by such vigorous expressions of citizen concern and participation.

Because of these numerous separate encounters, no one could follow the whole Stockholm "scene". On any day it was necessary to choose between a wide range of provocative speakers, including Barry Commoner, José de Castro, Margaret Mead, Paul Ehrlich, Robert McNamara, etc. Nor was it possible to reconcile or integrate the views expressed at Stockholm by all these minds:

the differences were too great. Therefore no agreed conceptual picture of the environment problem emerges from any of these encounters, and it is very difficult to assess how much real unanimity there was at Stockholm. But in quite unintentional and unexpected ways these different presentations did tend to reinforce each other and present to the world a picture of genuine concern about the threat to the one earth, which is perhaps all that could be hoped for at this stage.

The Witness of the Non-Governmental Organizations

The witness of the representatives of the accredited Non-Governmental Organizations at Stockholm was crippled in part by their great number. Most of them had not met before, and they were therefore totally disorganized. Since there was no opportunity during the Conference to organize themselves effectively they remained an ineffective mass of persons struggling to express their concerns. Before the end of the meeting their sense of frustration was very great indeed.

They came in part from old established Non-Governmental Organizations, in part from new environmental research organizations, many of which are not world-wide in membership or concern, and in part from citizen action groups, eager to break through the old established rules set by the U.N. for NGO participation. In order to satisfy their desire to influence the Conference, and to use them as a lever on the procedures, the U.N. secretariat invited Barbara Ward to help them draft a statement. This statement which was read to the Conference by Margaret Mead, was signed by some 180 of the representatives of these Non-Governmental Organizations. It followed very closely the line developed in the pre-Conference study volume, Only One Earth. In addition ten of the NGO's, including the World Council of Churches, were invited by the Secretary-General to make presentations to the Conference.

One problem of the NGO's is their tendency to be represented predominantly by whites from industrialized countries. Of the 550 accredited representatives of NGO's present in Stockholm only a handful were from Africa, Asia and Latin America. It was therefore difficult for them to claim to represent the wider interests of world humanity. But this was the problem of most groups at Stockholm, and indeed in some respects of the U.N. Conference itself.

Clearly there is a need for a more dynamic and world representative NGO-presence at U.N. meetings: to observe, to detect the points of special versus general interest, and to help communicate the realities of U.N. decisions to the people who will be affected by them. But the methods of work and the rights and privileges governing such NGO presence are far from clear, judging by the experience at Stockholm. Since NGO interests themselves are extremely varied the hope of a unified NGO witness would seem illusory unless they can find effective ways of sharing views in advance of U.N. meetings. To make their voices heard NGO's may need to organize more protest meetings and demonstrations like those convened by the various action groups at Stockholm. On the other hand unless such meetings represent new constellations of interest they will be self-defeating, weakened by sectarian multiplicity. The churches

must decide how they are to express their concerns on issues like environment policy in view of these different options, none of which are very satisfactory.

The Challenge of Stockholm

What are the central issues posed by the Stockholm Conference? More than any other U.N. meeting in recent times Stockholm marks the "end of an epoch". What emerges is a new vision of the world, a challenge to the old ways of thinking about limitless natural resources, about endless growth and about all the other assumptions on which human society has been based since the beginning of the industrial revolution. The underlying message of Stockholm is: the world is filling up and intensifying its use of natural resources; and the consequences are beginning to show - in pollution, not only of rivers and lakes, but also of oceans and the atmosphere; in the conflicts and pressures of over-urbanized societies; in the possibility that there may be less and less to share among more and more people. Yet while Stockholm has heightened our awareness of the precarious situation of modern society, it did not succeed in producing an agreed conceptual framework within which to see this problem in a world perspective. Basic disagreements among scientists and economists about the limits to growth were not and could not be resolved at the Conference. And the debate between the concerned scientists and the representatives of national interests did not really come off. The Declaration of Principles represents therefore not an enduring document representing a new understanding of life in a precarious universe, but a bland and prosaic statement which will serve, as was intended, only as the point of departure for the much more substantial reflection yet to come.

Yet the challenge to contemporary social, economic and political thought has been substantially intensified by the Stockholm Conference, and it is the task of groups like the churches to analyze and measure its consequences for their understanding of man and society.

Three questions suggest the issues which need to be dealt with in the follow-up of Stockholm:

1. What is the alternative to the growth-oriented economy which has been our goal since the beginning of the modern economic era, and how urgently must we find it? In their preparatory book for the Stockholm Conference, Barbara Ward and René Dubos declare that we must think in terms of a new kind of "valid" non-pollutive growth:

> "... Basic needs must be satisfied in any civilized community by whatever degree of income redistribution is needed to provide public funds without grave inflation ...
>
> "But once basic needs are satisfied, the wants that come thereafter do not have to be solely cars, clothes, frozen food, or electric can openers. If citizens want the nonpolluting pleasures of great art, if, as in tragic Hamburg in the winter of 1945 they ask for the Opera House to be reopened before a single bombed-out house has been rebuilt, then the output of

> opera singers and ballerinas will go up and the money earned by industrial or office work will pass through the nation's box offices, not the nation's waste-disposal systems, to pay for the ballets and operas. If citizens want to parallel their working life with renewed efforts of self-education, the output of teachers will go up and fees for adult education will pass through the colleges to pay for them. If they want more sports, they can provide themselves with more quite unpolluting sports grounds ...
>
> "These are simply a few instances of the way in which non-pollutive service activities can provide valid jobs and valid growth without putting a single particle in the air or an effluent in any river." (Only One Earth, p. 142)

On the other hand, in his address Mr. McNamara, representing the World Bank, said that it was wrong to think that the environmental issue need stop the world's search for traditional type economic growth.

> "... The achievement of a level of life in accord with fundamental human dignity for the world's two and three-quarter billion poor is simply not possible without the continued economic growth of the developing nations, and the developed nations as well ...
>
> "... The question is not whether there should be continued economic growth. There must be. Nor is the question whether the impact on the environment must be respected. It has to be. Nor - least of all - is it a question of whether these two considerations are interlocked. They are ...
>
> "... there is no evidence that the economic growth - which the developing countries so desperately require - will necessarily involve an unacceptable burden either on their own or on anybody else's environment."

His point of view was echoed by many speakers from the Third World.

Still other speakers however emphasized that whether out of necessity or because of a radical new appreciation of the need for ecological balance, the industrially developed world must depart sharply from the traditional preoccupation with economic growth and discover new individual and group life styles based on incentives and goals other than material well-being. In the final analysis the Conference did very little to overcome the disagreement between these different interpretations. It remains therefore the central unresolved problem.

2. How successful was the Stockholm Conference in interpreting the environment issue in terms of social justice? It is the view of some observers that the Conference, while recognizing the issue of social justice, did not develop a clear statement of it. Mr. Anthony Lewis, The New York Times columnist, while writing appreciatively of the

Conference, has stated that we must raise "the large question that lurked in the wings in Stockholm and that requires separate discussion: the social and political implications of inequality in a finite environment". (See his column, "One Confused Earth", The New York Times, June 17.)

It is clear that the western affluent nations will not of their own volition give this issue the attention it deserves. And the comparative numerical weakness of the Third World nations at the Stockholm Conference was all too evident and undoubtedly affected their ability to press this concern. The claim of world-wide representativeness of a U.N. Conference is in fact rarely if ever fulfilled. This is due in large part to the expense of such meetings. The poorer countries can afford to send only part of their quota of official delegates, with the result that they are overwhelmed by the full delegations of the rich nations backed up as they are by large groups of technical and political advisers. Moreover, the active leadership and staff of the Stockholm Conference appeared to be heavily western, even Anglo-Saxon, when viewed from the perspective of the African or Asian. The problem of seeing issues like the environment in a world perspective, in the context of the poorer nations' urgent concern for distributive justice, is a formidable one indeed in view of such practical handicaps. This may help to explain the tendency of such a conference to hear the African and the Asian voices, but not to heed them in proportion to the real numbers of people they represent.

3. How will the spiritual issues underlying the environment problem be dealt with in the U.N. context? A good many addresses at Stockholm stressed the deeper human, moral and spiritual dimensions of the environmental crisis. It was generally recognized that underlying the scientific and technical issue and the issue of social justice are more fundamental assumptions about man, nature and history. But how much did these in fact influence the Conference's understanding of the problem? And what are the consequences of their not being faced?

Without a clearer understanding of the spiritual dimensions there is little protection against the tendency towards a kind of easy moralizing about needed environmental change. Stockholm did not overcome the intellectual-spiritual contradiction which afflicts so much U.N. thought and action about international questions. On the one side there is recognition of the steadily growing crises, the inability to achieve real reduction in armaments, the inability to achieve world cooperation for economic development, and now the new awareness of the world environmental crisis; on the other side, the optimistic hope that through a little more effort, a little more confidence in the essential rationality of mankind, and a little more faith in the goodness of man, the right solution will be found. This optimistic spirit is reflected in the Conference Declaration on the Human Environment where it is said:

> "Along with social progress and the advance of production, science and technology the capability of man to improve the environment increases with each passing day."

The radicals, the liberals, the reformers and the revolutionaries at Stockholm all suffered from this kind of Pelagian theological defect;

they differed only in their emphasis on the particular cure-all which promises environmental salvation in our time. What seemed missing was a readiness to face up to and reflect upon the large gulf between the enormous social change needed and that which realistically could be hoped for; nor was there any questioning of the moral assumptions on which so many of the hopes for radical environmental renewal rested.

Looked at from a more rigorous theological perspective Stockholm contains both the promise of a new serious concern for the future of the world and the likelihood of new large conflicts and struggles as mankind seeks to realize the impossible. It is this promise/threat paradox which gives the Conference and its follow-up so much meaning and importance to Christians.

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II

Presentations to the Ecumenical Service, Stockholm

1. Human Environment: A Major Challenge for the Churches

Statement by Dr. Eugene Carson Blake

It is highly appropriate that the advent of this crucial world Conference on the Human Environment should be celebrated in the context of worship. The concern which gave rise to this U.N. meeting, the questions of faith and values which underlie much of the discussion, and the solemn responsibility now resting on those who participate in the Conference, should all be recognized by Christians as possessing a profoundly "religious" significance.

Lest this sound like the beginning of a bid for an ecclesiastical takeover, I hasten to add that the World Council of Churches did not organize this service under the illusion that it possesses any ready-made solutions to the extremely complex problems posed by the environment crisis! Nor can we Christians come here with complacency about the record of our own religious tradition which, in helping shape the attitudes and life styles of our time, has contributed at least indirectly to the problems now faced by everybody. Humility is required of us, as we recall with gratitude those who had the vision to call this Conference and those who have laboured so hard in such a short time to prepare for it, and as we offer our support and prayers for those who in the coming days will be charged with making far-reaching decisions on behalf of all the peoples of the world.

You who will take part in the Conference have a responsibility which is as exciting as it is solemn. Obviously the present international system of political, economic and ecological relationships is not viable for the future. To follow the present trends in our use of natural resources, in environmental pollution, in population, is to head for great human and social disaster. The spiritual and social confusion produced by this critical situation becomes more and more apparent. There is in some quarters growing cynicism about attempts to do anything in the face of such overwhelming difficulties. There are ominous hints of new forms of group protectiveness - introverted talk about safeguarding "our" people, "our" nation, "our" cultural heritage, "our" standard of living, "our" ethnic purity, against the ravages of a world nuclear, agricultural or economic catastrophe. But there is no escape along that road, given the ecological interdependence of the world as it now is. The nations desperately need to glimpse the possibility of travelling along a different road which offers the possibility of a more responsible use of the environment for the sake of all people. The nations need a stimulus, an initiative which you can provide, for concerted national and international movement along that road. We dare not expect that all the attitudes and practices which have led us to the present crisis will be transformed overnight. We know this Conference symbolizes a difficult new stage in history which requires the re-examination of some of the most fundamental assumptions undergirding the life styles and aspirations of human beings everywhere.

May I call your attention briefly to two aspects of your theme which interest the churches particularly and which illustrate the "religious" significance of your deliberations.

I. First, this Conference may turn out to be one of the important theological meetings of modern times; because the environment debate provokes a reconsideration of the most fundamental questions of human existence. What is man's chief aim on earth? What is his true relationship to nature or to the material environment which sustains his life? You may not use the technical language of theologians, but in your reflection you can hardly evade such central theological questions. Indeed, the preamble to your Draft Declaration already reads like a catechism on man and nature. But some of the affirmations breed more questions. It is said in the Declaration that "for the purpose of attaining freedom in the world of nature, man must use knowledge to build in collaboration with nature a better environment". But what is the nature of this knowledge which might be the salvation of man? Today we are overwhelmed with knowledge thrown at us in many different ways by droves of experts, suggesting many different solutions to the environment problem. What are the spiritual and ethical criteria by which we weigh and make use of all this knowledge?

There are many other questions to be answered. Whence comes the exploitative attitude to nature which has caused our technological skill to be used with such devastating effect on man and on our environment? What kind of human triumphalism has crept into western thinking about the relation of man and nature? The Church is often accused of having contributed to this disastrous distortion of man's role vis-à-vis the rest of nature. However some of the great Christian minds of the past had no illusions on this score. They viewed it as a part of man's sin to abuse the very nature on which he depended for his life. Saint Francis of Assisi was keenly sensitive to this problem. The father of my own church, John Calvin, declared, "It is true, and common sense tells us so, that the goods of the world are naturally destined for our usage. But as the Lordship of the world has been lost to us in Adam, all that we touch of the good things of the world is polluted by our human corruptions!" ("Tout ce que nous touchons des dons de Dieu est pollué par nos ordures!") It is only realistic to recognize that your work here in Stockholm will advance only in so far as new ethical insights about the human use of natural resources and their technological exploitation are forthcoming.

Christians, along with people of other faiths, must join in the search for the spiritual and moral values which could give us understanding of the good life and the limits it places upon our use of the earth's resources. The Church is surely part of the environmental problem, but some of us believe very strongly that it can also be part of the solution. Indeed, its convictions about faith, hope and love must be part of the solution if there is to be a world in which all people can realize more fully the potential of God's gift of life.

II. This suggests the second concern of the churches - to see the implications of the environment crisis for the struggle for world social justice. Concern about the environment arose as a preoccupation of the

industrially advanced countries. At the same time it has highlighted the scandalous and growing disparities between rich nations and poor. As a matter of urgency, the environment debate must be rescued from the provincialism and bias of the affluent (North America, Europe, Japan, Australia and South Africa) and restated in terms which take account of the problem as it appears from a world perspective.

People of the developed countries must not be surprised if their less affluent neighbours are somewhat cynical about this new-found concern for environmental protection. In their eyes, the pollution problem arises from the extraordinary acquisitiveness of the rich nations in gobbling up such a large part of the world's resources. They see the crisis not primarily in terms of pollution but in terms of the need for more equitable distribution. Some of your papers touch upon this vital link between environment and development, and we hope you will give it even more emphasis in your findings. You could help the rich countries to see the urgent need for a new distribution of the world's resources, vastly different from what it is now and what it has been in the past. And you can help them accept the actions which will bring this about.

There will be numerous tests of the sincerity of our public commitment to environmental improvement. As long as the war rages in Vietnam and the millions of tons of bombs fall on this tiny country and its people, so long will the concern of some western nations with ecology seem a blatant hypocrisy. As long as defoliants are used trying to suppress liberation struggles in Portuguese controlled parts of Africa, so long will debates about the environment seem to many people a pretence and charade.

To talk about development and peace while ignoring the environment problem would indeed be short-sighted and unrealistic. But to talk about the environment in isolation from the massive world problems of poverty, war and oppression would be profoundly irresponsible. Let us ensure that the environment issue, with its irrefutable evidence of humanity's physical interdependence, serves to advance the overall struggle for human solidarity and community.

Certainly Christians must remember that this is one world with one environment for one family of man. The neighbour in whose needs our God confronts us is not only the one in the next house or the next city, but also the human being living on a distant continent or not yet living anywhere because he or she is of a generation yet unborn. To see the human family as it really is, to help us overcome those partisan loyalties and idolatries which divide and obscure our common humanity, to move us one step closer to the building of a world-wide responsible society - this is the great challenge of your meeting.

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2. Address by Mr. Maurice F. Strong, Secretary-General of the United Nations Conference on the Human Environment

I welcome the opportunity to greet you this evening and to share with you this act of worship on the eve of the opening of the United Nations Conference on the Human Environment. In gathering here tonight to give thanks to our Lord for the bounteous treasures of our "Only One Earth" that He has provided, we humbly seek His guidance and His blessing on our generation to whose care it is now entrusted - and in particular on those leaders of the world who will be responsible for the decisions that must be taken in this city of Stockholm within the next two weeks.

If we are to succeed in the great venture that we launch here tomorrow, we are in need of wisdom and power far greater than our own. The hopes and the prayers of $3\frac{1}{2}$ billion people rest on our courage and integrity. It is an awesome opportunity.

It is these hopes and prayers that I should like to address myself tonight. In doing so, however, I must also tell you of my apprehensions. I do so not out of any pessimism, nor because of any panic. I do so because the realities that confront us demand new perspectives, new answers, a new moral and spiritual commitment from all of us - a commitment upon which our own personal hopes and our prayers must be based.

We have entered a new age, a new period of man's history, a period in which man himself has acquired the power to shape his own future - literally to reconstruct his planetary home and determine the kind of life he will have on it.

And we are now producing more changes in one generation in the natural systems on which our own life and well-being - our humanity - depend than in the whole of our previous history - creating risks which we still cannot assess. We know, too, there is literal truth to the words of the poet that to touch a flower is to stir a star. And knowing it demands a new view of the cause and effect relationships of human action - and reaction - in every sphere. Modern technological society is forcing us to come to grips with ancient religious truths. We can now lay to rest forever the fallacy that the unrestrained pursuit of private greed will serve the larger interests of society as a whole.

We are, in sum, in danger of destroying or desecrating the vital resources of the natural environment which we require to sustain us.

Who are the destroyers? We are. We who call ourselves people of faith, followers of such great heritages as Christianity and Judaism. We possess a major, even dominant, share of the world's wealth and technological power.

We who construct great cathedrals for worship have been guilty of defiling the cathedrals of nature that God has provided.

We who are called to love our neighbour allow the poisonous residues of our cities and factories to endanger his health and property.

We who are called to humility have been arrogantly assuming that we can set ourselves above the natural order of which we are a part.

We who are called to stewardship of the earth's resources carelessly plunder them.

We who are called to sacrifice have created societies based on massive self-indulgence.

We who in our moments of crisis and need call on the compassion of our Lord turn our backs on the poverty and misery of the majority of our brothers. Obviously, we cannot continue on our present course.

What, then can we do? Is doomsday inevitable? And if so why bother?

First, let us admit that doomsday is possible - even probable if we continue on our present course. But I am convinced that it is not inevitable!

There is time to change if we have the will to change. We have nothing to lose but our own smallness and there is a world to gain. Constructive political action and creative social change are each man's responsibility. But they are rooted in a more fundamental responsibility of each individual for his own personal attitude towards a more total concept of God's whole earth. Individual unselfishness is the key to that concept and to the survival of us all.

Some of us are old enough to share the responsibility for much that has gone wrong with planet earth, but too old to see the most dire consequences to mankind if we do not change course right now. But the young people who have demonstrated their concern today in Stockholm and in many communities of the world, do not share the burden of the past - only the consequences of the future if we do not decide now to change.

Let's face it. If the world is to change, this means that Christians must change.

They command so many of the vital levers of power which must be invoked to set man on a new course. We do not need to change our faith to change the world; we need to practise it, and to build larger bonds of fellowship with our brothers of other faiths. Ours is a faith which can move the minds and hearts of man where change must begin, and we must be prepared to learn from men of other faiths who often, more than we, have understood and respected the fragile balance on which our life depends.

All those beliefs, if practised, are revolutionary. They can unlock the moral and spiritual power we need for our survival in the ecological age.

We can - and we must - use much more of our energies and our resources to satisfy the higher, the non-material needs and aspirations

of man. It is surely in his search for beauty, for truth, for moral and spiritual growth that man achieves his highest levels of expression and fulfillment - that he becomes most distinctively human.

At the same time, and with equal urgency, we must foster responsible economic growth in the less developed regions where poverty itself is the greatest enemy - the great destroyer of human life and human dignity, and the greatest barrier to providing a decent environment for human life.

To thrive in the ecological age we must adopt new dimensions of cooperative behaviour, subject our competitive drives to new disciplines, show a wholly new willingness to share the power and the benefits of the high technology civilization as well as its responsibilities. This is true both nationally and internationally.

To be sure - this is a large order. It is up to us to make it a practical possibility. The very fact that over 100 nations are here today illustrates that narrow, short-term concepts of individual and national self-interest need not be the dominant motivation of men and their leaders?

Our hope lies in the nature of man himself, man at his best, in the image of God and with the power of His spirit. There is evidence in our past that we can, and do, respond to appeals to our higher values and our larger concepts of enlightened self-interest.

Our only alternative is to build on these hopes - hopes inspired by the principal lesson of the environment that of man's inter-dependence with his brothers. The evidence before us in the physical world supports the teachings of the great moral and religious philosophies - that brotherhood and cooperation and sharing and caring and stewardship are not ideals divorced from practical reality. They are pre-conditions for our own survival and well-being.

So at last we perceive a real synthesis between the physical and the moral world. Surely God could not have designed a more challenging and, in a sense, more ironical situation. He has placed in our hands the power to shape our future. And to make the choices which will decide the ultimate fate of man will require a degree of collective wisdom and enlightenment that can only come through a new moral and spiritual awakening.

Only this can provide the force that will move men - to lift up their eyes to the higher purpose, the nobler destiny that awaits us - to overcome greed, to transcend narrow concepts of personal and limited self-interest, to join in the thrill and the satisfaction of an unparalleled era of creativity. The alternative is to share responsibility for our own destruction and the end of the human experiment. The choices made by Christians in their own lives, in their societies and through their institutions will count heavily in determining the outcome.

For men of all beliefs the inevitable confrontation between personal life style and global destiny has been reached. And for all who call Christ Lord and Master, the moment of truth is at hand.

3. Statement by Dr. Letitia E. Obeng, Ghana

It is wonderful to see the nations of the world come together on a specific issue in the interest of our planet earth and mankind. I find it even more gratifying that the Church is participating actively in this meeting.

Scientific and technological advances bear witness to the extent of the power of creativity within the human brain. Ironically, the enormous and outstanding technological achievements of man in recent decades have in contrast also helped to expose clearly the helplessness of man within his own environment. Man appears almost as a freak, an exceptional genius on one planet whose environment alone, in a complex system of planets, can support him. In spite of his present exceptionally rapid scientific and technological advance, he remains a helpless creature, still at the mercy of the nature of his planet and subject to the consequences of his own activities.

His science and technology, for example, even now, still offer no answers to natural catastrophes within his environment which threaten his existence. He is still liable to destruction by the quakes from the bowels of the earth. Although he has hopes of containing the hurricane, he still can only run away from the heated fury of a volcano and has still limited means of ordering rising floods to subside. These are all nature's minor and crude tricks - but how they still threaten man! Nor can he understand, even now, why cruel things happen - why a child should die - or a husband, just when most needed? Man still has no answers. And yet, his material advance is vastly impressive, in spite of the litter of destruction that his methods may leave as a trail.

Happily, mankind has awakened just in time to the perilous situation towards which it has been driving. We foresee now an urgent need to reorientate our activities in order to preserve a viable environment for the future.

The quality of the environment varies greatly from place to place. The varying interests of the nations in the forces which shape the physical environment, result in their having different priorities for coping with the problem. As an African from a country in the developing Third World, I see our priorities from a definite perspective. I share the desire to maintain an acceptable quality of life and I am therefore fully concerned to see how this is to be achieved. For me the present concern is for the continued material development of the Third World; but equally I am concerned that in the process, the maintenance of a desirable quality of our environment will be assured. It matters that resources are utilized and not carelessly exploited; that harmful and indestructible materials are not indiscriminately used in the process; that conditions are not created that will encourage the mass movement of people into congested settlements; that trade terms are fair when we offer our resources for use by the rest of mankind; that we have a choice in the way we make use of education and technologies foreign to us; that we maintain the freedom to plan our population and the right to preserve the best in our culture and tradition.

I fully appreciate that an unbalanced distribution of technology has catapulted some sections of the world into great material riches leaving other sections poor according to the current international yardstick. I cannot deny the benefits that have accrued from man's creative ability but I am also painfully aware of the destruction that he creates; and this for the less developed world causes concern over the form of life in the future.

We are conscious that no nation, in so far as it is dependent on the resources of this planet, is self-sufficient. Man cannot, even with his present technological advance, live without the free natural resource of good air. He has tried to exist on the moon, in the depths of the sea, and within the bowels of the earth outside his normal habitat where there is no air. But the result has at best been limited and clumsy. He cannot exist without fresh water. He has tried to avoid shortages by obtaining fresh water from salt water, but the outcome has not been wholly satisfactory.

The present distribution of fresh air and fresh water is uneven. In highly industrialized areas of the world, the air is far from good. Water may be abundant in some places in the world, and lacking in others. The same is true of the distribution of a variety of natural resources. Like air and water, these resources need to be shared for the sake of mankind. The present "poor" nations, by virtue of being poor now may very well turn out to have a monopoly of essential resources on which life in the rich world has been nurtured and which it will continue to need.

I submit that the interdependence of all men and all nations is real and that this fact should be fully registered and endorsed. Consequently, there is an urgent need for a radical change in the attitude of both the poor and the rich nations in the sharing of the remaining resources of the earth. But when we of the developing nations seek aid, we want it to be aid which does not make a mockery of the word. We expect aid which is divested of the usual strangling ropes which continue to make poor nations even more subservient to the rich. We do not want aid which will stifle and destroy our intrinsic sense of spiritual and moral values. We do not want aid that will threaten the good in our cultural heritage. We do not want aid which will make us a dumping ground for the unwanted materials and technologies of others. But the world has been so accustomed for so long to a certain pattern of relationships that it will take a tremendous effort to achieve what we ask.

Speaking as a member of a developing country, I believe that our traditions however battered they have been by conflicts between the new and the old, still provide us with a deeply rooted understanding of desirable human relationships. We still have a substantial store of love for nature, however unsophisticated it may seem, and of love for our fellowman, however much it may have suffered from the bombardment of foreign cultures.

I refuse to believe that the spirit of human love has been completely lost in the rush towards materialistic development. I believe it still exists, indestructible beyond the cruel experience of international misunderstanding and selfishness. From all over the world, we must mobilize

love for our fellowman and for our planet. The Church can and should be a crucial agent in this process, to help guide and save the world from becoming dehumanized and to ensure the right of every being and nation to a good life.

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4. Sermon by Prof. André Dumas, France

"Who hath put wisdom in the heart and who has given understanding to the mind?" (Job 38:36)

"Up to the present, we know, the whole created universe groans in all its parts as if in the pangs of childbirth". (Romans 8:22)

Until recently it seemed that man was advancing rapidly and purposefully, ceaselessly pushing back the frontiers of his discoveries, his technology, his investments, his productions, his achievements, his communications. As the crowning species within the universe, he felt himself to be alone and supreme upon earth, his fellow-man his only rival and adversary. In short, history enjoyed absolute superiority over nature. But now we are beginning to awaken from this dream of unlimited growth. Awake, we oscillate between a sense of impending catastrophe, egotism and scepticism, on the one hand, and wisdom on the other.

The great fear of some is where technology will have carried us by the year 2,000, when man's industrial development will have irremediably outdistanced the limits of our available resources, just as there was once a widespread fear of the year 1,000 when men felt overwhelmed by the natural calamities of this world of space and time.

For others, the Stockholm Conference could mean the first step towards the international organization of the task of improving the quality of the life of the rich nations, who are wealthy enough to afford this, at a time when the other two-thirds of mankind are still striving desperately to achieve even a quantitative improvement of their subsistence level of life. In this sense the very success of the Stockholm Conference, coming hard on the heels of the disappointing outcome of the UNCTAD Conference in Santiago, Chile, would simply attach a seal of international respectability to the selfishness which divides mankind into two separate economies, one of luxury and one of poverty.

Others again will find their scepticism nourished by the sight of research teams, which yesterday were predicting an era of unrestricted plenty, continuous education, rational planning and increasing social equality for the so-called 'post-industrial' societies, today, on the basis of the same statistics and using the same methods, issuing Cassandra-like prophecies of every imaginable fear, declaring that scientific knowledge will become unmanageable and sterile, the world a jungle and its divisions worse not better.

For others, finally, and probably for all, the ancient, even biblical, term 'wisdom' - so central in our text - begins to attract attention again, although it is a term we scarce know where exactly to place : with science? with faith? or between the two?

We find ourselves at a loss here, not knowing what response to make, especially with the Bible in our hands. There are many ironies and contradictions. The Greeks, so gifted in mathematical formulation but in the last analysis showing little interest in technical invention (probably because of their supply of slave-labour), apparently regarded wisdom as an art concerned with keeping within one's limits, helping a man to avoid trespassing beyond the boundaries of the city state clearly differentiated from the barbarian masses, and to avoid offending the gods, themselves the offspring as well as the jealous guardians of a sacralized cosmos. Wisdom seems to mean here simply a thoughtful prudence in relation to large numbers and to a touchy mother-earth.

But the wisdom which the Bible equates with the fear of the Lord is not the same thing. God is not a Zeus, jealous of Prometheus. God is the creator of Adam. The world is not a divinized cosmos, something tabu, but an environment designed and provided for man and woman to enjoy, to cultivate and to conserve. For very complex reasons this biblical impetus, combined with Greek science, had the effect of promoting man's technical control over the world and giving him a non-Malthusian confidence in the future. But the question is being asked today whether this impetus given by the divine blessing on man has not in fact tempted man to arrogance and to a fatal isolation within the universe. Is this ambiguous heir of a universe which has been desacralized by the Word of God and of a world exploited by technology, really 'wise'? Whither is his historical advance carrying him?

In fact the Bible is far more pluralist than we imagine. At least two currents of thought existed in Israel: a historical and prophetic one, driving man forward by unique, fundamental and messianic interventions on the part of God; and a wisdom current where man is seen trying to use his intelligence and experience to reflect upon the everyday relationships between his life and his environment, between himself and the creation (as the Bible calls it), which is not so much an account of the causal origin of things as rather a description of the beneficent presence which accompanies man.

Half the biblical testimony is rejected if we insist only on the one current, that which points to the historic advance of mankind, as if the Hebrews had nothing but prophets. But the wisdom strand also constitutes an integral part of the Bible. We turn to it this evening to listen to one of its representatives; one of its most tragic, most thoughtful, most sceptical, and at the same time most believing representatives - namely, Job.

Job pleaded at length the inexplicable problem of his own undeserved misfortune, pleaded it before God and against God. He refused all the explanations offered by his friends who wanted to justify God, to clear Him of all blame, by making Job acknowledge his own secret guilt. Indignantly and persistently Job rejected any identification between the

injustice in the scheme of things and his God, who in His omnipotence cannot be other than just. The obstinate believer Job cannot admit that a world in which things go wrong is the creation of God's goodness. If God the Just One treats the righteous Job as an enemy then Job will be God's enemy without ceasing to call Him his God. That is the measure of the intensity of the question and the thought. Throughout the entire debate, both the charges levelled against God by Job and the arguments advanced on God's behalf by Job's friends, God Himself remains silent, as if it is proper for room to be allowed for scepticism, rebellion, human anger, when man probes the relations between his faith and his experience of life.

At length when God does answer, scorn and irony permeate his reply: 'Where were you when I laid the earth's foundations? When I watched over the birth of the sea? When I set the stars in place and opened the storehouses of the heavens?' At first sight this seems a shocking way to speak for it affords no direct answer to the suffering Job's disquiet. Moreover the argument adopted by God seems to us today so anthropomorphic that we find it impossible to saddle God with this initial outburst, or to see Him as responsible for the hazardous and deterministic process which is the description we should give of the universe and life today. Instead of protesting against an absentee God, would not Job have been better employed seeking true wisdom and realizing that man's happiness and misery bear no relationship to this implacable scheme of things? Why does he seem to capitulate so feebly to this cosmic argument after resisting so successfully the eloquent arguments of his friends? Such I suppose are your initial reactions on hearing the text. What can a passage such as this possibly have to say to you as you prepare for an international conference on the human environment, a conference in which we ourselves will be concerned, not of course to 'set the stars in their place' but at least to 'close the seas' to pollution, to protect the earth against degradation, to make men and nations accept responsibility for the future we shall bequeathe to our descendants.

We would be wrong, however, to read this passage as if 'wisdom' consists in turning from futile rebellion to fatalistic acceptance. Job, man, the crowning species of the natural world, seems to have understood God's speech quite differently. God who speaks to him of the enigmatic and scarcely rational features of His creation, is speaking indirectly about His own mystery. God does not explain the rationality of the universe. Rather He describes its apparent irrationality. What we are offered here is not a convincing explanation of divine providence based on the strict organization of the world but a convincing celebration amidst the incomprehensible profusion of the universe. Here is the challenge to Job, and to us too! Here is wisdom's first declaration! While not understanding it all, I can believe God when He tells me that this natural universe is a creation, in other words, that our environment is neither hostile nor indifferent, not something lying to hand for our utilitarian ends but the marvellous work of One whose Name alone is enough for me. To the sight and to the intelligence, nature is not the creation. It can become the creation from the standpoint of faith and trust, when God reminds us of our solitude; us who, like Job, make our projects, our misfortunes, our rulings, the centre of the universe.

What an astonishingly roundabout way of speaking personally to someone whose very heart is in revolt! A dangerously roundabout way, if we take it to mean an insistence that we should simply accept the existing disorder of things! A most fortunate detour if we are set in the midst of a universe armed in all its astonishing contradictoriness.

It seems to me that we need first of all to listen to this message, so that we might step aside a little from our technological ambitions and from our technological disappointments. If Job was able to hear a message of truth here, why should we too not learn in the first place that the world belongs to God, before we make it over or steal it for ourselves? We deceive ourselves if we imagine that the doctrine of creation is a myth designed to mitigate our ignorance of how things began. It is in fact a story designed to arm mankind against the oppression of the cosmic powers, against the loneliness of the conscience when it believes itself forgotten, as was the case with Job. In spite of everything, wonders surround us and accompany us. Man is not yet completed, neither anthropologically, naturally nor spiritually. Calvin once expressed this in the exultant words: status mundi in Dei laetitia fundatus est ('the condition of the world is founded on the joy of God').

The first thing God says to Job, therefore, is this: 'You imagine you are absolutely alone? Well then, take a look at the world! If you believe the world to be My creation and do not regard it merely as your domain, to be exploited one day, and threatened the next, then you will begin to breathe again, to hope again in a new way. You will not stumble from arrogance to anxiety. You will discover indirectly that, amid this multiplicity which so mysteriously escapes your understanding, you too are loved. God the Creator does not forget anything in all creation, even when everything, including man's suffering, seems so solitary and so chaotic.'

But wisdom has something more to say. When Job charges God with the inexplicable injustice of his suffering, why does God content Himself with pointing out to Job the unfathomable richness and variety of His creation? We can give a single answer to this apparent non-sequitur: God trusts Job. Job will be able to take the hint and understand that God is certainly not tyrannical or forgetful, that He is not simply the order in things, nor the indifference in things. For Job knows this already. He has wisdom in his heart. Job knows and believes unshakeably that the only possible and only just God is the God for whom man is His partner, His friend, the object of His special love. The universe, the stars, the oceans, the rain, the animals all exist as strange companions provided that God, above nature and not identified with nature, remains the One who loves man more than man loves himself. This then is wisdom's second declaration: the God who created the universe loves man in the midst of this world; when man's life is filled with suffering and injustice, God's heart is stirred with indignation and compassion. The reason why God had remained so long silent, leaving Job to struggle alone, was simply to see whether Job would cling to his faith in the living God or whether he would because of misfortune allow it to be said that God did not even notice injustice. But Job held firm and God can speak to him as to a wise man who has truly defended God's honour here on earth.

It is now possible for us to understand better the second of the biblical passages read earlier in this service: St. Paul's great passage in The Epistle to the Romans where he speaks, first of all, of the sufferings of man in this present time, then of the 'whole created universe' which 'groans in all its parts as if in the pangs of childbirth' and 'waits with eager expectation for the sons of God to be revealed' (Romans 8:22 and 19). If man with his sufferings and his hopes were not already there, the groans of creation, the pain of longing of the seas and the earth, would in truth count for nothing. If Job were not already there, what point would be in listing the natural phenomena which surrounded him? As René Dubos has put it so well: 'Despite the ecological purists, I believe that in the last analysis all ecology is anthropomorphic. Rather than a traditional ecology concerned with maintaining a climatic eco-system, I favour a functional (developmental) ecology, with man as its principal component'. The groans of creation are the echo of the suffering of humanity, just as God points out to His true servant Job all the marvels of creation with a view to comforting him and showing His confidence in him. Nature does not have a wisdom apart, as if the supreme pollution inflicted upon it had been man's presence in its midst! Quite the contrary. It is men, those whom The Epistle to the Romans calls the sons of God, who are said, metaphorically, to cause nature itself to share in the great longing for deliverance, for the deliverance from vanity and frustration.

In conclusion, therefore, we must consider how vain a conference on the environment could be if man, man with his sufferings and his hopes, were not its central concern. For it would be folly to protect nature reserves if alongside those reserves men continued in the depths of starvation. It would be folly to establish national parks if at the same time man felt free to perpetrate every kind of devastation and defoliation every time military power makes it possible and national arrogance encourages it. It would be folly to invest in ecology if the benefits deriving from such investments were to reinforce the dominant position of the privileged. It would be foolish for the technocrats to halt growth in order to safeguard the living standards of some, if no account were to be taken of the social and economic casualities which this halt imposed upon the majority. But it would be foolish too for the demagogues to behave as if the ecological crisis were merely a diversion dreamed up to distract attention from economic and social claims. It would be folly to issue recommendations if governments were determined to veto them once their short-term national interests were at stake.

It would be folly not to challenge anything radically, just as it would be folly to indulge in speculations which could only lead to paralyzing anxiety rather than to firm resolve. It would be foolish to cast longing glances at the past and to imagine that the natural order once possessed this infused wisdom which we no longer recognize in our technological lust. Above all it would be foolish to groan without also hoping, to affirm without at the same time endeavouring to do something.

The Stockholm Conference has a great task. If it knows how to respond effectively to the groaning of creation, this will not be in order to restore nature in itself, but deliver man and nature together from the threat of vanity and frustration. The Bible tells us that God gives the

created world as a good companion for mankind; but we all know that nature ceases to be the creation when all that issues from it is curses for man: nature exhausted, dried up and withered, nature bought, nature exploited, useless nature, vain nature where there is no longer any talk of the good news of God's bounty towards mankind, where all that remains is the stamp of man's obduracy towards his neighbour. To hand nature over to vanity is to destroy the creation. Man may cry out there but he will not be heard. He will be alone in his abandonment. He is a Job with no God any longer to listen to him and no God to drop him the hint, to whisper to him: 'The world is nevertheless there to confirm you in your confession of faith that what surpasses you is not the last addition which fills your cup of despair to the full but rather the beginning of wisdom in your heart'.

Quite concretely, God depends also on the earth which men make for one another. If the earth is left to take its course then we are doubly murderers, since we not only deprive man of his environment but also at the same time deprive God of His indirect witness. But if we understand that the Gospel, the Good News, is directly intended for every man and for all men and also indirectly intended for man's environment, we shall not set technology and praise in opposition. We learn to control what it is in our power to do, we who are still surpassed by what we are unable to understand. We become wise.

Some minutes ago I asked about the place we are to assign to wisdom. Is it closer to science - because, like science, it uses the reflective intelligence? Or, because it listens meditatively like faith, is it closer to faith? Is the wise man Job closer to scepticism or to faith? Truth to tell, wisdom would soon become scepticism if it existed in complete isolation from the presence of God. But it must also be said that faith never exempted anyone from the duty of learning to become wise; if it does that, it degenerates into fanaticism. Job was neither a fanatic nor a sceptic, he was a tenacious man and a tenacious believer. I wanted us to understand his rebellion and his listening, at a time when the nations of the world are called to prevent man's earth from becoming a curse for man, at a time when an exacting wisdom will be needed if we are to overcome the egotism of the strong and respond to the expectations of the weak, so that all the sons of God can be given compelling cause to praise nature as the creation of the God who loves us.

Prayer

O God, You commended Your servant Job as a wise man because he did not identify You with the scheme of things and with its injustice but continued to the end to protest strongly against undeserved suffering. Yet he did not imagine he could explain everything or understand everything, or lord it over everything. O God make us wise as Job was wise. Make us humble, rebels yet not strident in our rebellion, patient but not resigned, believing but not fatalistic. You have given us the world as Your good creation. Make us therefore workers in the world for the glory of Your Name as creator, in a love for our fellow men expressed in the way we live, by the hope and in the power of Your Holy Spirit.

Amen!

III

Presentation by the World Council of Churches
to the U.N. Conference on the Human Environment

by Elfan Rees
(Commission of the Churches on International Affairs)

The views which I shall present on behalf of the World Council of Churches reflect no great consensus or understanding in our churches on the problem of the human environment. On the contrary, what I want is to share with you some of the issues and questions which have emerged as the churches have begun to realize that the problems of man and his environment are central to their concerns for the future of man and society.

The ethical and spiritual problems associated with the question of the environment, which emerge from our ecumenical discussions and which must in some way or other inform your work may be summarized in four points, which I want to present to you briefly.

1. My first point concerns the importance to man of the environment issue and the way you shall affirm this in your Declaration on the Human Environment.

The environment issue which started out as the concern of a few enthusiasts mostly conservationists has now revealed its deeper implications. It raises questions which go to the heart of man's future, and the future of his culture. Indeed both in the Conference background volume, Only One Earth, and in the Secretary General's report it is made clear that we are at the "end of an epoch", that fundamental questions of man's existence now and in the future are at stake and that we must prepare ourselves as peoples of the world for great changes in our way of looking at questions like economic growth and affluence, and our use of science and technology.

We hope the urgency, the complexity and the reality of these issues will be incorporated in the Declaration which you adopt. They are, in our view, not in the present draft in a manner proportionate to their urgency. I remind you of the biblical injunction, "Do not hide your light under a bushel". Through the preparations for this Conference, you have helped us to see the existential importance of the environment issue. You have lit the light. You have brought us here in the expectation that it was necessary to think and act in new ways. It would be a great disappointment, and a tragic use of the bushel, if this Conference having been convened because of the critical issues at stake should issue a draft declaration which fails to convey to the world the full dimensions of the enterprise to which they have been summoned. To one who has read Only One Earth the present draft scarcely conveys the dilemmas or the difficult choices facing mankind frightened by the discovery of the costs to himself, his family and his society, of heavy industrial pollution of his environment, including the air, the water, and the food he needs for life. And the uncertainty posed by the possibility, emphasized by many scientists, that mankind may be pushing against the limits of a finite world, is scarcely echoed in the Draft Declaration. You have brought us to Stockholm to examine realistically

these questions. Don't draw back from the implications of this courageous new enterprise.

2. My second point relates to the need to clarify the connection between the concern for environment and the concern for social justice. One of the challenges generated by the sudden awakening to the environment issue is that there is in the minds of many a contradiction or an opposition between the concern for the two. Indeed there are some who have argued that environment is an escape from the difficult questions of social justice between rich and poor in our world. And often the approach of some environmentalists makes it appear that they are more concerned with protecting some particular bit of scenery than with the problem of food and welfare of many millions of people. Is there some kind of contradiction between the concern for the quality of life and the concern for social and racial justice?

The point surely is that the environment must strengthen the concern for social justice. Social justice in the context of a global environment will mean a new look at the relation between environment and development. It has been well said that the problem of a fair and just distribution of the world resources is heightened when it is discovered that these resources, whether of minerals, land, air or water must increasingly be seen as a common heritage of all peoples and so developed and used. The formulation of the criteria which will express that in realistic terms is surely one of the major tasks of this Conference. Your Declaration could help us all by making that point strongly lest some still be tempted to interpret their environmental responsibilities in a purely local, nationalistic, racial, or parochial way.

3. This leads to my third point, about population. I am aware that the Preparatory Committee decided not to make this an item on the agenda. Nevertheless you have been obliged to mention it in the Draft Declaration and in the Action Plan for the Human Environment and there is a substantial discussion of it in the unofficial preparatory volume. There seems to be no escape from the close connection between environment and the steeply rising growth of world population. While experts disagree on how many people the earth can support they are agreed that there is an upper limit. It follows that overall population growth must inevitably stop at some point. There is also no doubt that we are approaching this critical point far too rapidly for complacency.

What concerns the churches is that this population issue shall be rightly interpreted; that it shall not be interpreted as a concern of the rich to put curbs on the numbers of the poor, or that the concern for the quality of life for a few is held in higher regard than the welfare of the many. Our concerns are therefore twofold: What are the realities of the population situation and its impact on the environment; what means are governments using to control population growth and what are the ethical implications for man of these different policies? We are concerned with the search for a responsible population policy which might avoid obvious dehumanizing tendencies. The issue cannot be avoided just because it is complex or controversial. The development of technical means to control population growth on a mass scale, the reality of overpopulation in relation to available resources and food in many countries,

the ethical challenge of rich under-populated nations consuming more than their share of world resources, the danger that the population question will be mixed with racism so that whites, blacks, browns and yellows, use population policy in a struggle for political power, all these are important elements in this highly charged question. This Conference would shirk its responsibility if it did not pose such issues clearly to the world.

4. My fourth and final point concerns the effective follow-up of this Conference. The Conference leadership and the United Nations have never supposed that the problem of human environment would be solved in a 12-day Conference. You have called us here to mark the beginning of an enterprise not the end. The road looks long and rough, and the future is very much in question.

All the more important that this Conference help us to prepare for this fascinating but dangerous ecological journey. People of different faiths, different ideologies, different cultures, generations and experiences are asked to join the caravan. The challenge is fascinating, and a little overwhelming. Where will mankind find the spiritual and moral courage, the intellectual insights, and the technical and political determination to face the journey? Despite the difficulties we must start and you can help prepare us for the long march. What we need are good maps and travel guidance that have been well researched. We hope you will spell out these and other resources in your Declaration. But beware how you do it. In the present Draft, in paragraph 16 of the principles, it is said that "education in environment matters, especially for the younger generation, is essential in order to broaden the basis for an enlightened opinion and responsible conduct by individuals, enterprises, and communities in protecting and enhancing the environment". Your paternalistic concern for the environmental education of the young will not, I fear, be sympathetically received by them. Our generation created this problem and youth were on to it before many of our governments and international organizations. If I guess their cry aright it could come in the words of Houseman "And who am I to face the odds of man's bedevilment, and God's; I a stranger and afraid in a world I never made".

Where is the real reluctance to act on this problem? Shouldn't such education be directed at the large industrial corporations who are polluting our lakes and rivers and at the politicians who refuse to curb them? At the military planners who are content to pulverize, for an indefinite period the environment of countries like Vietnam in order to achieve their "national objectives", which could be a frightening precedent elsewhere? At those who assume that the growth of the affluent nations can and should go on at its present rate for ever? At all those, of whatever ideology, who believe that the fullness of a person's life can be measured in terms of the abundance of his goods? So let us listen to the young and let them educate us.

What is the real significance of the events taking place in these days, outside this Conference Hall? They are a strange mixture of tremendous hope, deep cynicism and almost overwhelming despair regarding the environment problem in general and this Conference in particular.

Maybe there is a parable in this ferment going on around us... A warning that we are being asked not only for solutions to the environmental issue, but far more seriously, we are being pressed to demonstrate that our existing structures of government, our political habits and international bureaucracies are capable of meeting the challenges of the future.

I admit, Mr. President, that the churches were slower than you were in realizing the terrifying implications of this problem. You have awakened us but in so doing you have lit a fire that you cannot put out. We will follow you so long as you advance, we will spur you on if you halt and we will take a vociferous lead if you turn back.

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IV

Only One Earth - by Barbara Ward (Lady Jackson)

It is impossible to take part in this Conference on the Human Environment without wondering whether we may not be present at one of those turning points in man's affairs when the human race begins to see itself and its concerns from a new angle of vision and, as a result, finds new openings for action, for courage and for hope.

When Mr. Maurice Strong invited my dear and valued colleague, Professor René Dubos, and myself to consult with expert opinion all round the world and write for this Conference an unofficial report on what we perhaps might call "the state of the environmental art", he suggested that such a report might provide "a conceptual framework" for the work which is beginning here at Stockholm this week.

But I think that what was chiefly impressive in the advice and information and ideas which we received in such generous measure from our correspondents was nothing so formal or even perhaps static as a "framework". The impression was rather of a surging, seething energy of new concepts, new insights, new preoccupations - and new fears. There was conflict and contradiction. There were shared themes and assertions. But what was common to virtually every contribution was a sense of struggling profoundly and seriously with wholly new dimensions of human destiny. Even in restating long-held beliefs, our correspondents often found themselves framing their arguments to meet new conditions and concepts. No doubt, an enquiry such as this Report, made in any age, would bring to the surface more intellectual ferment than the average citizen perceives. But I cannot help wondering whether today's debates, in their passion, scale and originality, do not resemble the much more profound questionings of the accepted order which erupt into human history in times of radical change.

One thinks of the intellectual ferment which, over two millenia ago, accompanied the end of China's feudal ward and the establishment of the first great centralized Han dynasty. In more recent history

men had almost to stand on their heads to realize that the sun did not go round the earth, but the reverse. This "Copernican Revolution" is the archetype of fundamental change by which men learn to rethink, totally, their place in the scheme of things.

Our own epoch is, I believe, such an age again. We belong to the generation that has used radio telescopes to uncover 100,000 million other galaxies each with 100,000 million other suns. We belong to the generation that has brought nuclear energy to earth, made possible by computers the simulation, acceleration and forward projection of infinitely complicated human activities and provided us with instantaneous worldwide and interplanetary visible and audible communication. Above all, we are the generation to see through the eyes of the astronouts the astonishing "earthrise" of our small and beautiful planet above the barren horizons of the moon. Indeed, we in this generation would be some kind of psychological monstrosity if this were not an age of intense, passionate, committed debate and search.

So vast is the scale of change through which we live that there must be an equally vast range of competitors for first place as agents of upheaval. By virtue of the consultations we have been fortunate to make, Professor Dubos and I are perhaps rather well qualified to judge the remarkable variety of priorities and emphases which expert opinion can bring forth. May I suggest three areas in which the concepts that are being virtually forced upon us offer a startling break from past patterns of thought and accepted wisdom.

The first is the possibility of making the planet unfit for life. Hitherto, people have known that they could do local damage. They could farm carelessly and lose top soil or deforest or overgraze or mine out a mineral. They also contrived to live through major natural disasters - earthquakes, tornadoes, ice ages. But nobody thought that the planet itself could be at risk. Today our experts know something new. They know that air, soil and water form a totally interdependent worldwide system or biosphere sustaining all life, transmitting all energy and in spite of its rugged powers of survival, full or immensely delicate and vulnerable mechanisms, leaves, bacteria, plankton, catalysts, levels of dissolved oxygen, thermal balances - which alone permit the sun's searing energies to be transmuted and life to carry on.

Our experts also tell us what we do not know. Given our suddenly and vastly increasing numbers, our enormous rise in the use of energy, including nuclear energy, and our fabulous mastery of molecular chemistry, we impinge on the fine balances and mechanisms of the total system in ways and with consequences that we too often are in position to judge.

Let me give one example. Our traditional vision of the oceans is boundless. It is inconceivable to our imagination that we should permanently damage this infinity of water. But we have no idea of its capacity to absorb - as it ultimately must - virtually all the planet's wastes. In the last two or three decades, to give only one instance, a high percentage of the long-lived chlorinated hydrocarbons - including DDT - appear to have been absorbed into natural "sinks" in the biosphere. Recent sample-taking suggests an unexpectedly high dosage appearing in

the oceans. Does this mean that natural storage systems are filling up? Will further effluents reinforce irreversible damage to marine species known to be susceptible to such substances as D.D.T.? Is this part of a deeper risk of deterioration from a steadily widening range of chemical wastes? We do not know. Rivers and lakes teach us that there are limits to water's self-cleansing properties. Ultimately the oceans are one vast cistern with no outlet. This image is a safer one, perhaps, than that infinite and "moving waters at their priest-like task of pure ablution round earth's human shores". And for our immediate work at this Conference it underlines the need for worldwide monitoring and research to ensure that over the next forty years of still continuing growth in people, industrialization, consumption and inter-continental transport we do not, unwittingly, take the oceans themselves past some still unmeasured threshold of "no-return".

This concept of newly understood limits is relevant to the second reversal of earlier concepts whose implications I would judge to be most revolutionary for the present age. For over a century now and with increasing enthusiasm in the last 25 years, we have seen in economic growth, measured by the satisfaction of both ordinary and induced material needs, a prime aim of national policy and a powerful solvent of social conflict. Inside the nation, as output and incomes rise, the flow of goods will be great enough to reward effort and enterprise and provide on an upward scale for the needs of the mass of the people. In the world economy, international trade and investment will pull the developing peoples up in the wake of the already developed nations.

This is a sort of "follow-my-leader" concept of economic satisfactions according to which, over the next fifty years, per capita incomes all round the world would rise to meet, say, America's present annual average of $4,000 - or, if you prefer a concrete measurement, a million calories and thirteen tons of coal equivalent in energy. At the same time developed standards would rise to perhaps $10,000 or $15,000 per capita with a two-home, three-car, four-TV-set norm in the upper income brackets.

But this implicit assumption of unending expansion has two self-reinforcing flaws. Even within the wealthiest states, even with all the transfers of resources from richer to poorer citizens secured by tax and welfare and social insurance, "trickle down" economics do <u>not</u> ensure the ending of poverty at the base of society. The lowest twenty per cent can have as little as five per cent of national income, the top twenty per cent as much as forty. In the world at large, where no systematic social transfers occur, the richer states are pulling away from the less developed ones. Even if $10,000 a year per capita is a reasonable likelihood for developed societies by the year 2000, for two thirds of mankind, $400 a year looks like being the utmost reach of optimism. For perhaps a third, malnutrition, illiteracy, shanty-town dwelling and unemployment - in other words, the worst of all human environments - could be the most likely fate.

But now we must add another constraint. Even if we assume unlimited resources with which to develop, development is, as we have seen, grossly uneven. But suppose there are indeed strict physical "limits to growth"? Suppose that these delicate mechanisms and balances in the biosphere that

make life possible cannot sustain ten billion people all aiming to produce and consume and discard and pollute according to present developed standards?

Here, admittedly, the range of debate is very wide. Some experts believe that 20 billion people can live at America's present standards simply on the products of atomic energy, water and the minerals in common rock. Others postulate irretrievable damage in terms of exhausted resources, thermal pollution an environmental disruption if even half that number secure the current standards of the rich. We are at the beginning of this debate. But one point is surely clear. There are limits. The biosphere is not infinite. Populations must become stable. So must the demands they make.

But in that case, whose upward aspirations must first be checked? Given finite resources, we cannot evade this basic social issue. Where are the restraints to be put? What is to be reduced, the luxuries of the rich or the necessities of the poor? What are the priorities - a decent human environment for the whole human species or riches for some and squalor for the majority? We can slide over this fundamental issue of environmental quality only if "trickle down" economics work within a context of unlimited resources. Neither assumption is correct. So, as nations, as a planet, we are compelled to confront the fundamental issues of choice and justice.

But at this point we encounter a third basic challenge to our habits of thinking. Our effective instruments of judgment, decision and action are separate national governments. The nations give our planet - as Professor Dubos has so movingly described - its colour, its variety, its richness of life and experience. For those whom full nationhood has come only in the last quarter of a century, it expresses the essence of their being and their hopes. None of this can be doubted. Yet it is also true that the cumulative effect of the separate actions of separate sovereign governments can, over time, injure the basic national needs of all of them.

If our airs and oceans can stand only so much strain before they lose their capacity for self-purification, it will help no government to say that others were responsible. The most flagrant case is clearly the risk of nuclear conflict and planetary nuclear pollution. We may rejoice that a number of intergovernmental agreements now limit atomic testing in the air, keep nuclear weapons from the seabed, Outer space and Antartica. We can welcome, too, the recent agreements between the United States and the Soviet Union to check the arms race and hope that this may signal the beginning of a joint effort to wind it down.

But we could collectively pollute the planet not "with a bang but a whimper" - by the small, steady accumulation of longlasting poisons and pesticides, of chemicals and tailings, of eroded soil and detritus and reach, almost inadvertantly, a creeping planetary disaster to which all have separately made their cumulative contribution. No single nation can avert this risk as numbers and activities rise. Its control will be achieved by nations acting together - or not at all.

And this raises by another route the issue of planetary justice - which equally cannot be solved by nations acting alone. How do we ensure that the need to check pollution does not become an inhibition on the desperate need of two thirds of humanity for development? This is an area about which we do not know too much. It is certainly not clear that all non-pollutive technologies are more expensive. It is also possible that in opting straight away for pollution control, developing states could take full advantage of the greatest asset of late comers - to learn from other peoples' mistakes. Equally it is possible that to control wastes and effluents at an early stage of modernization would greatly add to costs and strains.

Should poorer countries then accept added costs for development or even their own modernization because developed nations have already, as it were, pre-empted so much of the biosphere's costless capacities for self-cleansing? We do not know the answers. But we do know that nations, acting individually, will not necessarily produce a workable planetary answer. The relentless pursuit of separate national interest by rich and poor alike can, in a totally interdependent biosphere, produce global disasters of irreversible environmental damage.

There are then, I suggest, three vital ways in which the reality we are beginning to perceive diverges from our habitual thinking. We normally consider Nature as a whole, the entire biosphere, to be safe from man, even if we can chip away at little bits of it. We have been taught to believe, with increasing intensity in recent decades, that we can modernize all our economies and settle most issues of distribution by our unlimited command of rising energy, technology and resources. And by our millenial history we have been taught to expect final decision to be taken by separate sovereign states. It requires a desperate wrench from accepted thinking, a profound leap, a Copernican leap of the imagination, to begin to see that in stark physical and scientific reality none of these pre-suppositions are any longer true. We can damage the entire biosphere. Resources are not unlimited. States acting separately can produce planetary disaster.

We all know enough of history to realize how uncertain it is whether this change in the direction of our thinking will be made in time. Custom and habit hold us to the traditional themes. The sheer momentum of our present activities could well be enough to drive us on for another four or five decades on our present path. We could increase the damaging impact upon our biosphere, accentuate the deepening gulf between wealth and opportunity for an elite of developed states and a squalid and deteriorating human environment for everyone else. We could arrive at no inter-governmental agreements or strategies to check either kind of profound environmental degradation. This is a possible "scenario". Realists might even call it the most likely one. But I would like to give you three reasons why I feel it is legitimate to entertain - shall we say, a modest hope?

The first is that we are here in Stockholm at all. It is quite clear that in two short weeks the responsible authorities will not be able to do much more than agree on broad directives and on appropriate machinery for further action. But once the environmental concern moves

nearer to the centre of the nations' attention, I do not doubt that its fuller implications will inevitably unfold. For its whole essence is interconnexion and interdependence. Its whole message is that separate drives, ambitions and policies have to be made compatible with the continuing common life of our single, shared planetary system. We have laid our hands on Ariadne's thread. It may seem a very little one today - no more than an intention, an Environmental Fund, a Secretariat. But we are setting off for the heart of the maze and that maze is the scientifically proved and entirely ineluctable reality of planetary interdependence.

My second reason is precisely this scientific imperative. We can cheat on morals. We can cheat on politics. We can deceive ourselves with dreams and myths. But there is no monkeying about with DNA or photosynthesis or eutrophication or nuclear fusion or the impact on all living things of excessive radiation - from the sun or the hydrogen bomb. And what our incredible scientific break-throughs of the last century have taught us is that the ultimate energy of the universe both sustains or destroys life and that the mechanisms and balances by which it becomes life - enhancing are fragile and precious beyond our belief. To act without rapacity, to use knowledge with wisdom, to respect interdependence, to operate without hubris and greed are not simply moral imperatives. They are an accurate scientific description of the means of survival. It is this compelling force of <u>fact</u> that may, I think, control our separatist ambitions before they have overturned our planetary life.

But man does not live by fact alone.

Our <u>human</u> environment has within it our perpetual striving to make it humane as well. In the past, historians tell us, there have been profound revulsions against the aggression, pride and rapacity of human systems. When, some four millenia ago, the great river valley systems first built elaborate civilizations on top of Neolithic agriculture, many of them succumbed to the conquering militarism of the state and the luxury and rapacity of the leaders. It was, it seems, partly to protest this violence and hubris that all round the world, there arose a universal, moral affirmation. The great ethical systems of mankind - in India, in China, in the Middle East, from the benign wisdom of Confucius to the passionate social protest of the Hebrew prophets - all sought to express an underlying moral reality, that we live by moderation, by compassion, by justice, that we die by aggression, by pride, by rapacity and greed.

Now in these latter days, the planet itself in its underlying physical reality repeats the witness of the sages and the prophets. Our collective greeds can degrade and destroy our basic sources of life in air and soil and water. Our collective injustice can continue to create an intolerable imbalance between rich and poor. Envy and fear can unleash the nuclear holocaust. At last, in this age of ultimate scientific discovery, our facts and our morals have come together to tell us how we must live. I for one believe profoundly that they have done so just in time.

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V

Economics of an Improved Environment

Gunnar Myrdal

(The original text of Prof. Myrdal's address has been shortened and edited for publication here.)

I

The anxieties now expressed by biologists and other natural scientists working on the world's ecosystem concerning the impending depletion of irreplacable natural resources such as water, energy, some crucial metals, and arable land, and the pollution of our environment - air, water, land, animals, and indeed of our own bodies - should rightly have important consequences for development planning in developed and underdeveloped countries and for economic theory both on the macro and micro levels.

Of the two environmental factors, pollution is, on the whole, a quite recent worry. In regard to depletion, there have been several development experiences reaching back more than a century that have conditioned economists as well as the general public not to take such warnings about a deteriorating environment too seriously. And, indeed, economists rather generally, with some exceptions including the present speaker, tend to belong to the "optimists", who are inclined to discount these warnings as exaggerated.

One such early conditioning sequence of events was the refutation by experience of Malthus' theory and the implicit forecast, that what he called the tendency, of "geometrical" growth of population, if nd checked by "moral restraints", would come to press on the agricultural resources of land. These Malthusian thoughts were accepted by Ricardo and the whole early school of classical economists. They provided the basis for Ricardo's harsh theory of wages and of distribution in general. Indeed, they led him to vaguely envisage as a result of development the stationary state, with rising land rates, falling profits, the ending of real capital accumulation, and wages becoming stabilized at the production costs of the labour force, all based on a balance of the forces of growing scarcity of land and the tendency towards population increase.

Quite contrary to this gloomy forecast - except indeed for the under-developed regions - the era from Malthus up to the present has been one of historically unprecedented economic growth and also gradually rising levels of living even in the lower income brackets. This has happened in spite of periodic interruptions by depressions and even devastating wars. This growth accelerated after the Second World War.

In hindsight, it is possible to account for the major alterations leading to this result; among them, rapid technological advance in agriculture as well as industry; from the middle of the nineteenth century, the huge imports of food to Britain and Western Europe generally from the

emigrant settlements in the areas of the New World where the natives were not so numerous and could be killed off or segregated in various ways; and still later the spontaneous spread of birth control.

Through all my working life as an economist there have been fears about the pending scarcity of raw materials. Even the Atlantic Charter contained a passage expressing this fear and requesting equal access to raw materials. From time to time there have been large-scale studies giving similar warnings, among them the Paley Report in the fifties and more recently the report on Resources and Man by the National Academy of Sciences in the United States.

But in actuality there has always been a good supply of raw materials. Indeed, the development prospects for underdeveloped countries have continually been endangered by oversupply and the low prices of the primary products depending on land resources, that make up the bulk of their exports.

It is possible ex post to explain why these newer fears of depletion have so far not been justified by developments. A main cause has been the never-ending discoveries of new supplies of raw materials, particularly of oil and various metal ores. In addition, there have been technological inventions making it possible and economically profitable to create economies in the use of raw materials, and also to replace some of them by less scarce raw materials or by manufactured products produced from them.

Because we in the developed countries have been permitted to retain that important element of faith in human progress prevailing in the era before the First World War, we all have come to trust in continuous and boundless economic growth. In that respect there has been no difference between developed countries with different political systems. And after the liberation hurrican that swept away the colonial power system after the Second World War, the underdeveloped countries' demand for development was based on the same faith in the unlimited possibility for growth, if they could only overcome the lack of capital and other obstacles and inhibitions to development.

II

We have so often heard the cries that the wolf is coming that we have become accustomed not to take them seriously; I have, however, become convinced that we must finally recognize and prepare for the fact that there are limits to a growth whose component elements all follow an exponential curve.(1)

All estimates upon which the warnings for depletion and pollution are founded are utterly uncertain, as another of the lecturers in this series, Professor René Dubos, has authoritatively explained: "The existing knowledge

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(1) A main reason, why I am inclined to take a more gloomy view of the future than most of my colleagues among the economists, is that I foresee that this time an unguided, natural development will not save us. We would need to take planned government actions on a large scale to defend our environment. And I mistrust both the will and the capacity of governments to decide upon and effectuate such policy to the extent needed.

of the natural sciences is not sufficient to permit the development of effective action programmes." Many of these estimates are still of a highly controversial nature. Further discoveries and inventions can only very broadly be surmised. Future policies which might come to direct and thereby influence the scope and direction of science and technology are in principle not possible to predict. Since they will depend upon the way in which people choose to act and react. History is not a blind fate.

But these reservations against the inexcusably careless manner in which so-called futuristic research is now often pursued do not decrease the necessity of long-term planning. What happens in our children's time and even further ahead, if this type of exponential economic growth continues, does matter to us as citizens of our nations and of the world.

In any case, the unprecedentedly rapid and still accelerating growth of the world's population, which is fairly certain to continue for many decades, means that we shall invite catastrophic developments, unless we are prepared now to introduce and enforce various restraints and deflections of production and consumption and, indeed, our ways of life.

III

As usual, the economists have in their work reflected and rationalized the common inclinations among the general public in their societies. At the same time they have thereby supported in a mighty way the ideology and psychology of continuous and unlimited economic growth.

There are, in particular, two traits in modern economic theory that reflect this accommodation to prevalent thinking and which, consequently, have to be given up, or altered in a radical fashion, in order to build up an "economics of an improved environment".

One is the concept gross national product, of which national income is an affiliation, and the use made of this concept. It is no exaggeration to state that modern economic theory has more and more organized itself around this concept, breaking up the GNP into its constituting elements and seeking their determinants and the causal interrelations in the economic system which they constitute.

Though there is no possibility to demonstrate it in this brief lecture, GNP is a flimsy concept in developed countries and, for various reasons, even very much more in underdeveloped countries. These defects stand out particularly in regard to problems of a long-term character, such as I am discussing today. A number of the many thousand categories of income and cost elements are defined in a grossly arbitrary way; some elements are not included at all in the calculation of the GNP. And any attempt to introduce ongoing depletion and pollution into the calculation of the GNP must fail, because of the gross uncertainties I have alluded to, and the consequent difficulty or even impossibility of quantifying these facts in the way needed for aggregation. They are therefore absent from the calculation of GNP.

Without being able to prove it today, I must add that attempts to define a broader concept of "social utility", including not only production but also all other social indicators, are doomed to remain on a level of useless speculation and are conceptually invalid.

In addition to this lack of reliable quantification of all the things that are deemed desirable or harmful, there is also more fundamentally, the almost total absence of quantitative knowledge about "the coefficients of inter-relations" between the various factors determining the movement of the social system as a whole. This becomes particularly apparent when, as we certainly should, we include attitudes, institutions and political forces as they operate in the "circular causation with cumulative effects", which governs the movement of the social system.

In the very short-term economic analysis - in developed countries though, not in underdeveloped countries - the GNP as now calculated may nevertheless have some indicative value. In all countries many individual figures from national accounts relating to ingredient elements may also be of use. But for long-term problems, focused on the facts of depletion and pollution together with attitudes, institutions and political forces, the GNP has to be thrown out as entirely inadequate to reality.

This is more serious, as the concept GNP is now being used as the king-pin of economic analysis of the development problems in both developed and underdeveloped countries. Indeed, this use of the GNP has become the expression and justification of the ideology and psychology of the continued unlimited growth I have mentioned.

IV

At this point a few critical remarks on the recently published Club of Rome Report, The Limits to Growth: A Global Challenge. It will probably have the useful effect of popularizing the ecologists' broad warnings of the necessity of giving up our expectations of continuing on the road of unrestrain growth. But to serious students it has grave defects in its very approach to the problems of present trends and the possibilities and means of altering them

To begin with, the Report uncritically accepts the concept GNP without any queries. It builds upon, and aggregates in the most careless way, data that are extremely uncertain both in regard to economic growth itself and its various components. The data concerning threatened pollution and depletion are equally unreliable. Even a popular presentation should contain a reminder of this, particularly as it is of importance for the use of these data in system analysis. The authors are, in other words, overselling their product in regard to the validity of the basic data.

Much more fundamental is the question of the realism of the Report's global "world system analysis". This analysis implies, to begin with, a non-consideration of the enormous and increasing differences and inequalities within countries and still more between countries (see below). To explain this, the Report states that "inequalities of distribution are defined as social problems" and then placed outside "the world simulation model", which

only "calculates the maximum possible behaviour of our world system", provided that there is "intelligent action on world problems, from a world-wide perspective".

A social scientist working on these very problems will be hard put to give any intelligible meaning to this assumption of perfect harmony in the world. Still less will he be able to outline how it could be brought about. In a pretended systems analysis it is simply not possible to get away from the social problems merely by stating that they are not taken into account. The ecosystem has to be studied as part of the social system I have mentioned.

More specifically the Report places outside the "interactions" within the "world model" attitudes and institutions, indeed even the process of price formation, while politics is only represented by stating a number of the results of abstract policy alternatives. Their system is, therefore, far from inclusive enough to have meaning.

The birth rate, for example, is quite rightly a factor, and a very important one, within their model. But it is certainly not a function only of the other factors within that model and the interrelations between them all. As we who have studied the demographic development in the several regions of the world know, the movements of these other factors are not even among the most important determinants of the birth rate. And the importance of them is not through the simple interrelations of the model. Indeed, those interrelations are fictitious.

Under these circumstances the use of mathematical equations, and a huge computer, which registers the alternatives of abstractly conceived policies by a "world simulation model", may impress the innocent general public but has little, if any, scientific validity. That this "sort of model is actually a new tool for mankind" is unfortunately not true. It represents quasi-learnedness of a type that we have, for a long time, had too much of, not least in economics, when we try to deal with problems simply in "economic terms".

In the end, those conclusions from the Report's analysis which are sensible at all, are not different and definitely not more certain than could have been reached without that elaborate apparatus by what Alfred Marshall called "hard simple thinking aware of the limitations of what we know".

V

The second trait in economic analysis which implies an accommodation to the ideology and psychology of unlimited growth is that it has retained the theory of price formation in competitive markets. The preferences of all concerned are expressed in aggregate form by their demands and supplies. Production and resource allocation are steered by relative profitability.

This leads to the very heavy discounting of the future at the present time, represented by interest and profit rates. This implies a time horizon much narrower than should be accepted by our collective society,

which must consider developments decades and centuries ahead. When economists argue that, as resources become scarce, the cost of these resources will rise so that depletion is avoided, they are not taking into account the fact that this reaction does not come early enough to be a rational and sufficient way to avoid depletion.

What is needed to realize the goals of society is a large-scale correction of the process of price formation: the conditioning of production, investment, scientific and technological research, and consumption to take a different course and, in regard particularly to pollution, to get the whole population to behave differently, not only in their demand for consumption but also, for instance, in how they behave in the matter of wastage and refuse.

There are, in principle, two means of introducing and giving effect to policy measures against depletion and pollution. One is direct government regulation of people's behaviour, forbidding them to do certain things and directing them to do others. The second is that of price policies, inducing by means of charges and/or subsidies different signals to consumers and producers.

The effects of interferences with price formation have been rather marginal, leaving the process to be mainly ruled by spontaneous demands and supplies which operate within the established parameters. The new restraints and deflections, motivated by considerations of long-term effects of the trends towards depletion and pollution, but infringing upon people's impulses to follow their individual short-term preferences, must in comparison stand out as radical.

This raises a serious political problem. How is it possible to move from a general awareness by the public of the dangers ahead, to a preparedness to impose the controls needed? This would ideally imply a centrally imposed and enforced planning of almost all economic and, indeed, all human activity.

Implied is also an equally serious administrative problem: how can the controls be applied so that policy decisions really become effectual, and how can that be done without necessitating a huge policing and controlling administration which would be financially too expensive and also too obnoxious?

In view of the administrative problem there is every reason to operate as far as possible through price policies, than through direct government interdictions and prescriptions. On this particular point, I believe I can speak for the whole profession of economists. But we would deceive ourselves if we believed that the goals could be reached without direct controls also, for instance in the vast field of waste disposal or in regard to international treaties directed towards the control of pollution transmitted through water and air.

I feel sure that economic science will increasingly be able to lay the foundation for such radical central planning which may be necessary to meet

the impending dangers of depletion and pollution. It will imply, however, such alterations in our approaches that we would have the right to talk about a "new economics". To what extent such a development of our theory would influence government policy is another matter, however.

The concept of the GNP, and the whole structure of theoretical approaches built up with the GNP as a central axis, will have to be dethroned. And the process of price formation will be even further removed from being essentially concerned with aggregated individual preferences represented by demand and supply.

As economists as a rule are a rather conservative lot in so far as the main structure of their conceptions and preconceptions are concerned, it was not to be expected that they should have been in the vanguard for such a fundamental change of society and their own science. The main pressure will, in the future, as up to now, have to be exerted by those natural scientists who are studying the ecosystem.

VI

So far I have had in mind the developed Western countries, including also Japan and the two small Australasian countries. The problems take a different shape in the East European Communist countries with their centralized and comprehensive planning.

We might first note that, at least until recently, their planning has been directed almost solely to economic growth. In that respect they have not been different from the Western countries, even though they have defined GNP somewhat differently. A change, implying increasing consideration of the problems of depletion and pollution, is now under way. These countries should more easily be able to move further in that direction as they have only to incorporate new goals for the central planning that already exists.

This does not mean, however, that they have escaped, or even can escape, the two serious problems, the political and the administrative ones, that I briefly outlined in regard to the Western countries. If they have not been more successful in speeding up economic growth than they actually have been, the main reasons are the necessity to take into account the inclinations of their consumers and, even more, the top-heavy, hierarchically-structured bureaucracy which is needed for implementing their central planning.

In these countries prices are, in principle, not left free to be the result of a market process of price formation but are centrally decided upon as part of the planning. In the determination of prices, their economists have not been very successful in explaining and motivating it by a clearcut theory. There have in all these countries been intermittent attempts to allow space for a freer play of demand and supply in markets, thereby decentralizing decision-making in the interest of efficiency and rational resource allocation.

I foresee that the European Communist countries will retain their central planning, increasingly directing it not only on growth but also on improving environment, but, at the same time, giving price formation

a somewhat freer play. Meanwhile, under the influence of the environmental crisis, the Western countries will be compelled to move towards more central planning, while retaining as much as possible of a market economy. This will tend to decrease the distance between the two types of economies. And there are other developments working in the same direction.

VII

In the global perspective, it is the great majority of people living in the underdeveloped countries that is most seriously and immediately threatened by the environmental crisis. Two important facts lead to this conclusion.

For one thing, all the underdeveloped countries are located in the tropical and subtropical zones, while all industrialized countries are to be found in the temperate zones. By its direct and indirect effects on human beings, animals, soil, etc., climate is generally a serious impediment to development, although one can read hundreds of books and articles on the development problems of these countries without finding any reference to climate - as little for instance as to the "soft state" and corruption.

In regard to pollution and, to a certain extent, depletion of resources particularly the agricultural ones, climate means that these countries are more defenseless against destructive forces. The second fact, much more important than climate, is the population explosion.

I find it a serious defect of the so-called Founex Report on Development and Environment, presented as a document to the United Nations Conference on the Human Environment, that these two major problems of climate and population are not given their due importance. It is, unfortunately, not true that the problems of environment in underdeveloped countries are simply related to underdevelopment on the one hand, and development on the other.

VIII

In one sense, the population increase is the key factor in the environmental problem. Natural resources have to be considered in relation to the size of the population which shall be provided for. And pollution is also in many ways a function of the density of population.

If, at present time, the underdeveloped countries are estimated to have two-thirds of the world's population, by the end of the century their population might increase to four-fifths. At that time the population in the developed countries may have moved towards a stationary condition, while almost certainly the population in underdeveloped countries will continue to increase further - tending to result in a world population of 10 and gradually 15 billion and more. During the seventies, at least, the population increase in the underdeveloped countries is bound to accelerate.

The driving force behind this development is largely what happens in underdeveloped countries. There the braking distance is so long, even if birth control should come to be widespread. This is so because of the youthfulness of the population, which is a result of earlier and still persistent high fertility.

The spread of birth control to the masses in these countries is an exceedingly difficult task. It will not happen spontaneously, as in the developed countries. I cannot enlarge upon this subject in this brief lecture but have to restrict myself to two crucial assertions.

First, that the clamour now so often expressed, not least in the recent debate on the impending environmental crisis, that policy should be very "strict", sometimes interpreted to mean "compulsory rationing of births" or something in that direction, is totally unrealistic.

A government which has decided to do its utmost to spread birth control among the masses has to attempt to reach out in the villages and the city slums where people are often illiterate, very poor, underfed and often not in good health, and as a result generally apathetic. There it has to get the individual couples to radically change their most intimate sexual behaviour. That is one area where "strict" orders from above do not have much effect and where "compulsion" is simply not workable.

Secondly, there is very little the developed countries can do to assist governments in the underdeveloped countries in carrying out this task, other than giving contraceptives - which they generally should be able to produce themselves - some equipment and jeeps to be used by the family planning staff, etc. The common clamour that "we" should place a high priority in our aid policy on family planning, demonstrates again lack of realism. There is only one major aid we can offer, viz. that our scientists perfect even more the already vastly improved technology of birth control.

IX

Another serious impediment to development in most underdeveloped countries is the trend towards increasing inequalities.

The growth of the population has by itself in many ways the effect of increasing inequalities, particularly in agriculture. But in addition to this, there are gross inequalities that are ordinarily not effectively being counteracted by reform: land ownership and tenancy, the school system as inherited from colonial times, the assessment and collection of taxes, and many other aspects of the institutional structure. In a "soft state" it is also in the first instance people having economic, social and political power who can enrich themselves by unlawful means, among them plain corruption that almost everywhere seems to be on the increase.

Egalitarian reforms in these and other respects are not felt to be in the short-term interests of the upper strata which mostly has the power in these countries, whatever their system of government. As in colonial times

it is almost inevitable that both government and business in developed countires have, through all their relations, come to support these strata.

I have, through my studies, come to the conclusion that the trend to greater inequality must be broken, and that egalitarian reforms in the fields alluded to are not only in the interest of greater justice but a precondition for sustained and rapid growth. Up till now whatever development most of the underdeveloped countries have had has mostly enriched the tiny upper strata, including the so-called "middle-class" or "educated", and occasionally also the small group of workers in modern industry, but left the masses of people where they were. That the Founex Report is entirely silent on these and related problems is understandable and typical.

This trend to greater inequality in most underdeveloped countries and the certainty in them all of a very rapid increase of the labour force, as well as of the whole population, mean that in the seventies which the United Nations General Assembly has courageously named the Second Development Decade, we must expect an unfortunate development: increasing underutilization of labour and as a result great misery among the rapidly swelling masses in the rural and urban slums.

In some parts of the underdeveloped world we might then not be far off from the crisis point, when for certain broad strata the Malthusian checks come into active operation. Such a development will ordinarily stretch over a period of years with minor ups and downs. And it may not for a long time show up in the mortality statistics which, with the great weaknesses of statistics on illnesses, is commonly also used as a measurement of morbidity.

But a large and growing part of the poorest strata in a population may be diseased, or at least be lacking in normal vigour, and become even more afflicted, while mortality rates are still decreasing, due to the cheap and powerful medical tools made available after the war. They might continue continue to live and breed only to suffer debilitating conditions of ill-health to an ever greater extent. But sooner or later the death rate is also going to rise.

X

The environmental problem, particularly with regard to the depletion of irreplacable resources, is nowadays discussed as a global problem. But there is a distributional issue involved: who has the power over the resources? The disregard of this issue makes many of the common, brave and broad pronouncements utterly superficial and misleading, indeed meaningless. To give meaning, concreteness and relevance to our pronouncements on the global problem of resource depletion, we have to lay down our assumption regarding the distributional issue.

It is customary to say that the 20 or 30% of that part of mankind living in the developed countries now dispose of some 80% or more of the world's natural resources. Much of this 80% of the world's resources is

imported from the underdeveloped countries where now two-thirds, and soon a very much greater portion, of all people live.

International trade in resources and products near the raw material stage has in some respects rather sinister consequences. My compatriot Professor Georg Borgström has enlightened us by reiterating that underdeveloped countries are continually exporting large quantities of high-quality, protein-rich food products to make overeating possible in the affluent developed countries, and sometimes to provide food for dogs and other domestic animals or to be used as fertilizers. This fish meal, for instance, is imported from African and Latin American areas, more critically short of protein than even South Asia. In the United States and Europe it is then used to feed poultry and livestock.

The result is that the inhabitants of the rich countries take an altogether disproportionate share of protective food available in the world and use it in a less economical way than in the underdeveloped countries, at the same time as they generally use up an equally disproportionate share of grains for feeding purposes.

Even aside from that type of export from underdeveloped countries which deprives them of primary products from land and sea which they very badly need themselves for feeding their undernourished and malnourished population, the fact must be spelled out that the small minority of people in developed countries appropriate and use for their own production and consumption an entirely disproportionate and steadily increasing part of the world's resources. One broad inference is that any hope that the living levels in underdeveloped countries would ever approach those in developed countries presupposes a radical increase of their use of irreplacable resources.

With the growing awareness of their threatened depletion this would, in turn, necessitate acceptance of a substantial lowering of living levels in developed countries. I see no sign of such a thought, even among the most ardent advocates of the necessity of taking a global view of the use of resources and certainly not in the announced aid policies in any developed country.

My main point however is the purely logical request that any discussion of depletion of resources in global terms, if it is not to remain on the level of general and unclear phrase-mongering, must take a stand on the distributional issue. Is it the assumption that in the interest of greater equality in the world there should be a fairer distribution of resources between developed and underdeveloped countries in order to make possible a corresponding speeding up of their development? Or is it the assumption that the present proportion appropriated by developed countries is going to be upheld and even gradually increased with their rising levels of living, including the large imports of resources from the underdeveloped countries?

The second alternative of status quo on the distributional issue is apparently taken for granted. This should then in all honesty be stated. And the word "global" should be used with more care, spelling out that tacit assumption.

As I have already hinted, there is also a tremendously wide difference in timing, so that the race between agricultural resources and population-size may result in a catastrophical situation. In some underdeveloped countries that time might now be approaching for large masses of their inhabitants, while developed countries would be in the position to continue to decrease the areas of cultivated land as well as the labour force employed in cultivating it. A simple counterposing of population and arable land for the world as a whole is a meaningless and misleading exercise.

In regard to most other resources and, in particular, all sorts of minerals, the main efforts to economize their use must take place in the developed countries, where most of them are actually being used up. Any success in doing this will then, for those materials which are imported from underdeveloped countries, imply a decrease of export incomes for these countries: lower exports and lower prices in the "world market" for the underdeveloped countries depending on these exports. Again, a "global" analysis in aggregate terms of total world resources and the use made of them is grossly misleading and, in fact, meaningless.

XI

What are the political prospects for governments applying policy measures to improve environment or, to being with, to prevent its further deterioration

Awareness of dangers to our environment has in the last decade spread to all persons in these countries who are at all alert. Recently this awareness has intensified, under the influence of the preparations for the United Nations Conference on the Human Environment which has in fact, been turned into a world-wide educational movement.

In many of our countries there is almost a competition among the political parties to urge government action for the protection of environment. However, what I have called the ideology and psychology of unrestrained economic growth has retained its hold over people's minds. And in national communities with a competitive market economy, every single group is bent upon, and organized for, continual pressure to raise their incomes and their levels of living, with little or no visible intention of changing the direction of their consumption demands.

There is little or no thinking on the costs and restraints that are implied in the application of the new policies, and no great preparedness in any group to participate in paying these costs and submitting to these restraints. Such inconsistency in popular conceptions of policy issue is nothing extraordinary but rather a universal illustration of the way politics is conducted in our countries.

However, already governments are sponsoring studies and setting up agencies for environmental controls. I foresee that without too much resistance everywhere in the Western world we shall have ever more effective controls of all sorts of novel chemical and biotic concoctions whether used in food production, as cosmetics or to improve taste. Their number are

rapidly increasing, and up till now no more than a minor fraction of them are said to have been reliably tested for possible toxicity. The same is true of the increasing variety of washing detergents. The capacity of the national research institutions is increased by borrowing from what is done in other countries.

The restrictive controls over these types of manufactured substances will be the more readily accepted by the public, because of the steady stream of new research reports on the damaging effects of one after another of them. I can foresee legislation for laying the burden of proving them harmless upon the producer or seller. They form too small a pressure group to be able to offer much resistance. And the restrictive controls do not cause many real sacrifices and costs on the part of the consumer, who might even soon learn that they are better off with a less variegated supply of drugs, fancy foods and washing detergents.

When, however, we come to restricting the use of various chemicals for raising the productivity in agriculture and forestry, and to preventing the dumping of unprocessed waste from industrial factories into lakes and rivers and their poisoning the air by smoke, then we enter a field where substantial costs are implied. The more effectively the controls are applied, the more the costs are increased. If not absorbed by government subsidies and borne by the tax payers, these costs will ultimately fall on the people as consumers in the form of higher prices and on income earners, mainly the employees, in lower wages.

Only in the period of transition can these costs be expected to remain losses on already invested capital. Considering the fact that such strong vested interests are involved, it is astonishing that these controls have recently been increased and magnified so relatively quickly in many developed countries. Part of the explanation is undoubtedly the publicity about, and people's actual experience of, dead waters where it is not safe to swim and where fish are disappearing or have become so contaminated that they cannot be eaten without health risk. In regard to these types of controls we are, however, only at the beginning of what we, with good reason, should continue. And the controls will be expensive.

In advanced welfare states like Sweden, interest will increasingly become directed upon improving the working milieu in the factories in order to protect the health and happiness of the workers. This movement is being coordinated with the strivings for "industrial democracy" giving the employees a larger say in directing the industrial activity, particularly, but not only, in regard to working conditions. Industry will cooperate, partly under compulsion of government regulations, sometimes sweetened by subsidies in various forms, and partly, no doubt, because of social responsibility. But it all carries heavy costs.

In these countries there will also be increasing popular pressure for protection of nature, flora and fauna in order to serve the pleasure and wellbeing of the people. This is also not without its costs.

All these policy measures as here exemplified are directed against pollution in the widest sense of that term. In a world where raw materials

can be imported and are continually cheap, the threatening depletion of irreplacable resources will hardly become an effective motivation for national policies.

Exceptions to this rule are the land and energy resources, in regard to which restrictive planning is usually also required in order to avoid or decrease pollution. Some saving of resources will also follow the reclamation and recycling to prevent wastage from industry, or to prevent human conglomerations from pestering our environment.

In addition to the costs, policy measures taken to preserve and improve our environment will regularly restrain people's freedom to do what they please. This is what I refer to as the administrative problem. In so far as the policy measures are restricted to charges and/or subsidies of a generalized nature, the administrative problem should not be too heavy a burden to shoulder for a government of a developed country, although the sometimes high profits to be gained by circumventing these controls may create temptations similar to those causing tax avoidance and tax evasion. General regulations restraining and redirecting investment and production in industry and commerce and the municipalities' ways of dealing with wastage will also usually not raise insurmountable administrative difficulties.

But when it comes to regulating the individual behaviour of people and, to some extent, also of the very small-scale enterprises (for instance, in what manner they dispose of all sorts of refuse and how they behave towards nature) there are limits as to what the government can do both in the costs implied in policing the regulations and in the acceptance by those being controlled. These limits to disciplining the behaviour of masses of people are already now severely hampering policy.

XII

The primary difficulty is, however, the political one: how to get people to permit the government to initiate the policy measures in the first place.

Take as a special case the automobile. Our nation will probably accept ever more effective controls on the production of automobiles, aimed at making them safer and less polluting. The increased costs, ultimately to be borne by the consumers, will in the generally inflationary climate of all developed countries and with the high priority given to that type of private consumption be tolerated without too much gruding.

But this is only part of the problem. All big cities are severely overcrowded by automobiles. Not only is the air polluted by exhausts but the transport situation is in a mess; no government or municipal authority has felt it possible to restrict effectively the use of automobiles in cities. The owners and would-be-owners are everywhere by far the biggest political party.

In no developed country, as far as I know, has it proved politically possible to get the car owners to pay the full costs, including the heavy

investment costs for roads and adjusting cities to the cramming of cars in the streets, the costs implied for all delays caused to people in the cars and on the streets, the costs of policing the traffic, and the very heavy public and private costs caused by the accidents, not to speak of now paying also for the pollution of the air.

General declarations in favour of "a new style of life", directed to "the quality of living" and to giving up consumption of a lot of basically less necessary commodities, has a general appeal to any public. But the accustomed "style of life" has a great power to survive, particularly in a competitive market economy, where every group is bent upon defending and raising its incomes and its levels of living. Practically our entire institutional structure and our attitudes are geared to growth of the old kind. Now comes the additional fact that there are costs implied in the policy measures needed for defending and improving environment. No group is very willing to pay also these costs.

It is true that in the longer run these costs may be profitable and result in higher productivity. But initially they are heavy. The costs come first, far ahead of the returns. They are in the nature of "investments".

We must note also that none of the developed countries has managed to prevent inflation. From one crucial point of view the fundamental cause of inflation is that people are not prepared to make sacrifices in their private consumption large enough to pay for the public expenditures they want to have made.

The priorities differ. For the forced extra saving implied in inflation, the Americans have got in exchange a huge military establishment and the deeply disturbing memory of the lost Vietnam war, while we Swedes have, among many other good things, got a great number of large and excellently equipped but very expensive hospitals. But fundamentally there is a similarity in the causation of inflation. What the ordinary citizen in our countries wants is higher public expenditures without having to pay for them, that is, making investments without committing himself to savings.

It is in this situation that we have to take into account that the policy measures against pollution imply costs, often of the investment type. Without a fundamental change in people's attitudes, these policy measures will, therefore, add to the forces driving to inflation. From one angle, important to the economist, this is the effect of people's desire for a "higher quality of life" without any infringement on all their other desires. In this development any single country has to watch what is happening in other countries. If it goes faster than those countries with which it trades it incurs dangers for its trade and payment balance.

This relation to inflation will undoubtedly put a hamper on the speed with which policy measures against pollution can be decided upon and applied. And if we make the assumption, at present rather unrealistic, that a country would be prepared to fight inflation effectively and keep the value of its currency unchanged, it would have to go further than

otherwise would be necessary in its restriction of private consumption, if it wanted to pursue, at the same time, an effective anti-pollution policy. Otherwise it must give up that policy more or less completely.

XIII

Concerning conditions in the centrally planned economies of the developed Communist countries in Europe, I restrict myself to the assertion that the problem is very similar, except that they are not under the necessity to care so much about their peoples reactions. This difference is, however, only a relative one.

As everybody knows the articulate educated citizens of underdeveloped countries, who represent their "public opinion", show less excitement about the environmental problems. The oligarchies that are generally ruling these countries, often not truly representing even those upper strata, are also often much more tightly controlled by the big enterprises, who therefore represent comparatively much stronger pressure groups. Among them the thought is rather natural that their industrialization should not now be hampered by controls that were not applied in the developed countries when they industrialized.

In agriculture, in particular, where there is both acute depletion and pollution on a large scale, policies to prevent a deterioration of the environment are intimately related to other needs for radical reforms, in regard not only to population control but also to landownership and education. As these reforms are ordinarily not attacked with much vigour, the environmental reforms also tend to fall under the table.

XIV

There are intergovernmental problems related to the defense and improvement of the environment. Let me first consider these problems as they appear within a political block of developed countries which, being more like-minded, can be assumed to offer the greatest opportunities for intergovernmental cooperation.

I am here in the position to cite an important and widely noted policy statement by Dr. Sicco Mansholt, President of the EEC Commission.(1)

It is, indeed, radical in its tenets. He argues for "a strictly planned economy" for the Community of West European States: a "European plan", that is supposed to make the planning "highly centralized" and "respected when national economic plans are drawn up".

For this planning, the GNP shall be "abandoned" and replaced by a mystical "GNU (utility)". This latter concept is not defined, except by a reference to "Tinbergen's idea of Gross National Happiness", with the

(1) I am quoting Dr. Mansholt from the Guardian, April 11, 1972.

added reservation that "it is still not known whether one can quantify this utility". It is not only a question of quantification: even conceptually this idea is not tenable.

The purpose of this drastic planning is to reach "a non-polluting system of production and the creation of a recycled economy". Mansholt also foresees "considerable reductions in the consumption of material goods per inhabitant, to be compensated for by the extension of less tangible goods (social forethought, intellectual expansion, organization of leisure and recreational activities, etc.)". As there will then be "a sharp reduction in material well-being per inhabitant", Mansholt also finds reasons for egalitarian reforms aimed "to offer equal chances to all".

Mansholt argues "that the Commission could make concrete proposals" for this overall centralized planning and apparently also believes that those will be accepted by the member states.

I am an old planner, with the roots of my thinking firmly in the Enlightenment philosophy and, in particular, the thinking of the early socialists in France and England, whom Marx later called "Utopian". But experience and study have taught me the very narrow limits for effective planning and plan-implementation in our type of national communities. Even stopping inflation and restoring a stable value to our currencies seems at present an unrealistic goal for planning. And we may note that economists generally are not even pursuing seriously that goal any longer but are satisfied with warnings about the danger of getting out of step with the general trend to inflation in other countries.

That Mansholt is building a castle in the air, should be clear from the argument in the last sections. Peoples and governments do not become different because they join in a Community of States. Rather the commitment to seek common solutions of problems will necessitate consideration being given to the government that is slowest to move and thereby often hindering other governments to proceed faster and further.

This does not exclude that the EEC could not occasionally be able to provide the matrix for intergovernmental negotiations within their sub-region, directed, for instance, toward getting the West German government to take action against the poisoning of our common atmosphere by the Ruhr industries.

In regard more particularly to planned policy actions against depletion of resources, which figures so prominently in Mansholt's philosophical tract, I doubt whether any government action is likely or possible in any country as long as there is a world market for these resources - unless controls are already needed to decrease pollution.

The possibilities of pressing common central planning of pollution controls upon the European Communist countries participating in the Warsaw Pact should be somewhat easier as they are all planned economies, though even in that sub-region it will meet resistance. As between under-developed countries regional cooperation is generally nowhere highly advanced, and as the pressure for environmental controls is weak within them all, I cannot foresee much prospects for any such cooperation.

XV

On the still broader problem of world-wide cooperation to protect and improve our environment, it is difficult to see bright prospects. The very precarious situation in the underdeveloped countries which I have alluded to in earlier sections, forms the political climate in the world for the United Nations Conference on the Human Environment, which is now meeting here in Stockholm. We should feel pleased, if the Conference preserves the momentum in the awakening interest in the environmental problem, sets up a permanent agency for continuing the work, builds a substructure for carrying it out in the regions and sub-regions under U.N. auspices, and outlines a few badly needed treaties on intergovernmental cooperation for preventing pollution of air and water.

In the pollution field, however, intergovernmental action will be severely hampered by collision of interests, particularly those between developed and underdeveloped countries. To take one example, if the former countries are stamping out the use of DDT and other similar harmful agents, they might find it natural to set up trade barriers against imports of food and other commodities containing them.

As long as science and technology have not produced an effective and equally cheap substitute for DDT, that is decomposed more fully and rapidly, underdeveloped countries may find that they cannot afford to abstain from using it. If that becomes their policy, the developed countries cannot, in fact, protect themselves very effectively as DDT also spreads through air and water. Developed countries, on their side can, however, feel additional reasons for the trade barriers by using them for protectionistic purposes.

None of the broad pollution problems are simple, and for reasons already alluded to, pollution does not stand out as a major problem to those who are politically powerful in most underdeveloped countries. They will have to be offered inducements to go along.

In regard to depletion of irreplacable resources I must confess that, as long as they are in international trade, I cannot perceive of any possibility even to approach agreed policies in this field. As I said, in the individual developed countries I cannot foresee any interest in taking action against depletion, even nationally, except in very limited fields, and of course still less in the underdeveloped countries.

And I see no political mechanism, through which action could be taken for preserving resources. We do not have a world government, still less a world government having the power to enforce planning on a world scale of the use of resources.

XVI

As I am ending my lecture I realize that what I have said adds up to what is usually characterized as a "pessimistic" view. As a scientist, I want simply to be realistic. Despite my rather sombre views, I am not defeatist. If we are given time, we might be able to change political

attitudes and even political conditions. A realistic analysis should only urge us to strive the harder and to be prepared for pressing radical reforms.

This implies also being prepared to accept a "new style of life". We all feel hopeful about the youth now growing up in the developed countries, that they shall have other ideals than those now steering our course. We also hope that they shall have more of a heart for the misery in under-developed countries.

It is clear that internationally in the first instance we demand greater generosity on the side of people in the developed countries. From that moral issue we cannot escape. Economics itself is a moral science, which, in principle, was recognized by our predecessors a hundred and two hundred years ago but is now often forgotten.

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